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WITH FLASH-LIGHT AND RIFLE

PHOTOGRAPHING BY FLASH-LIGHT AT NIGHT
THE WILD ANIMAL WORLD OF
EQUATORIAL AFRICA

BY

C. G. SCHILLINGS

TRANSLATED AND ABRIDGED
BY

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HARPER & BROTHERS PUBLISHERS
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TRANSLATOR'S PREFACE

IN translating Dr. Schillings's work my endeavor has been to adhere as closely as possible to the original, in order to preserve the freshness and virility of the author's touch, and to show how quick his resources in positions of grave danger, and how his indomitable courage and ingenuity enabled him to overcome apparently insurmountable obstacles. I have taken the liberty of omitting certain portions of the narrative that were somewhat in the nature of repetitions, or of little interest to American readers, but I have preserved faithfully all that was vital and essential in the story of his marvellous adventures while studying the habits of the animals of the African wilderness.

HENRY ZICK

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AUTHOR'S PREFACE

ALL the illustrations in this book are reproductions of photographs taken by myself.

When Dr. Ludwig Heck characterized my animal pictures as "nature-documents," he named them very appropriately. *They are reproduced from the original plates exactly as the scenes fixed themselves on these plates; no attempt has been made at retouching or "improving" them.* The only exception is the picture in chapter xx., representing two lions attacking a bull, which has been retouched somewhat in the upper left-hand corner by Captain Kiesling, in Berlin. The plate had been damaged in the camp and in this condition had been forwarded to the captain. Six months afterwards a telegram was forwarded to me in the wilderness, bearing the laconic, glad news, "Saved."

The original photographs were either taken in the ordinary way or at long distances—telephotographs—or, at night, by means of artificial light, the flash-light.

I often succeeded so well in taking pictures by flash-light that the animals had impressed themselves, as it

were, upon the sensitive-plates before they had become aware of the light.

I want to emphasize the fact that, even where some pictures show remarkable, extraordinary light-effects—like the telephotographic pictures, showing the white, shining tusks of the male elephants, and the flash-light picture, showing the glowing eyes of the lioness (chapter xix.)—no retouching has been done. *This feature distinguishes my pictures from all others previously taken of animals in the wilderness.*

The reader is advised to view the pictures which were taken from a distance from not too close a range; they show to better advantage when they are held off a little distance.

William Boelsche writes about my pictures as follows: "Many pictures have been taken at night by flash-light; they reveal to us the most intimate life of the animals which no human eye had ever witnessed before, ever since man and beast met in the wilderness. . . . Here nature has been made to focus itself on the photographic plate. . . ."

Professor P. Matschie says: "I am custodian of the collection of mammals in the Berlin Museum of Natural History, and often have to pass judgment on animal pictures. It gives me the greatest pleasure to say that Schillings' pictures have aroused my deepest interest; they constitute the beginning of a revolution in our methods of observing the life and ways of the animal

world. We are not any longer dependent on lucky chances; the road opened by Schillings' methods will lead, no doubt, to deeper insight into the life of animals. Even art will profit by these documents of nature, as the next art exhibition may show. . . ."

Dr. Lampert, of Stuttgart, director of the Royal Museum of Natural History, says: "We know now, for the first time, what pictures of animals from life really are. Schillings' pictures are of eminent importance in many respects. The animal world of Africa will live in these pictures long after the animals have been swept from the earth by the advance of man. . . ."

My main motive in quoting the opinions of these men, prominent as experts in natural science, is to encourage and exhort other hunters and explorers to procure similar "documents" of the fauna, which I have not been able to reach, and to do it quickly before the animals have been destroyed and our opportunities for observing them have been lost.

In conclusion, I want to extend my hearty thanks to all who have aided me, directly or indirectly, in accomplishing whatever little I may have achieved. I also crave the indulgence of the reader for my many shortcomings as a writer. To write books seems to me a harder task than to photograph lions in the wilderness.

C. G. SCHILLINGS.

WEIHERHOF, GUERZENICH, near DUEREN.

WITH FLASH-LIGHT AND RIFLE

I

THE TRAGEDY IN THE PATH OF PROGRESS AND CIVILIZATION

MODERN man, equipped with the engines and tools furnished him by the inventive genius of the last century, has conquered and subdued almost the whole of our globe. While, not so very long ago, it took us months or even years to reach certain far-off countries, we now, thanks to a net-work of railroads and the ocean greyhounds, travel in a few days or weeks to the remotest regions and the most distant shores.

Man has succeeded, and still succeeds, in developing the resources of the earth and in unfolding its treasures, battling victoriously with seemingly unconquerable obstacles and difficulties, spreading progress and civilization on his onward march. But this advance is accompanied by a destruction which, though we may deplore it, seems inevitable.

Far away from the centres of our civilization, the

hustle and bustle of our commercial cities, the noise and stress and strife of our manufacturing towns, there is being enacted, in our own days, a tragedy full of pathos and unlike any other. Everything which blocks the way of modern man on his relentless march of conquest is crushed without mercy, directly or indirectly. The original inhabitants of entire continents, unless they are capable of adapting themselves to our civilization, are doomed to perish. With them is disappearing the rich and beautiful fauna which has enabled them to exist, and which now, often in the space of a few years, is slaughtered and extirpated.

At no other time, except, of course, during the periods of universal terrestrial catastrophes, have numerous species of animals, particularly those excelling in size and strength, been totally destroyed. And the flora, as a rule, suffers the same fate as the fauna. Primeval forests are uprooted, or at least despoiled, and thick-timbered lands are changed into treeless, desert steppes.

Civilized man, displacing and replacing the aborigines, brings with him animals from his own country which supplant the indigenous fauna; and with the introduction of new plants, including weeds, the flora, too, changes its character or gives place to the foreign species.

The outcome of this process is evident. Civilized man will destroy all that appears to him harmful or valueless, and will try to preserve only those animals and plants which he deems useful or ornamental. The

STOREHOUSE OF ELEPHANT TUSKS AND RHINOCEROS HORNS

evidences of this destructive progress are, unfortunately, sufficiently numerous. Brief mention only need to be made of the North American Indian and of many Polynesian tribes.

For centuries man has waged a war of extermination against the fur-bearing and the oil-yielding animals of the polar regions. Very successful in this respect has been the activity of the Hudson Bay Company in the Arctic belt of North America. The fur of a sea-otter brings, to-day, a snug sum of money, and, for many years past, it has been impossible for museums of natural history to secure perfect specimens of this animal.

The time is not far off when the story may be written of the "last of the whales," the biggest of the existing mammals. Although hunted for centuries, these oil-yielding animals have succeeded in escaping total destruction by retreating into the ice-bound polar sea. But since the harpoon has been superseded by the cannon and the rifle, and the single, daring whaling expedition has expanded into a scientifically prepared and strategically carried-out campaign by companies of capitalists, the death-knell of the whale, the giant animal which is a fish only in form, has been sounded.

The time is not far off. How far off? It may be centuries. But what do a few centuries amount to, compared with the æons it must have taken nature to develop these giants of the sea to their present perfection! Still numerous "schools" of whales are roving

in the icy waters, until those waters grow red with the heart-blood of these animals, shed by their insistent foes. But soon the tale of the death-fight will sound like a story of olden times, like a fairy tale, and our descendants will view with astonishment, in museums, the poor remnants of an extinct race of mammals.

What I have said of the whale applies with equal force to many other species of animals irredeemably destined to vanish from the surface of the earth.

Only a few decades ago, millions of buffaloes grazed on the wide prairies of North America; to-day these millions have followed the shades of the majority of the Indians to their heavenly hunting-grounds. And the reason for their extirpation? As Dr. Heck, in his book *The Animal Kingdom*, has shown, they had to die because they endangered the safety of the Pacific roads.

So the millions of buffaloes were sacrificed to the railroads. Still, in the seventies of the last century an untold number of bison hides were bought and sold; a few hundred bisons now form the miserable remnants of former riches. Without forethought and against all sound reason, these creatures have been butchered.

Soon a number of other beautiful and precious species of the North American fauna will follow the fate of the bison. President Roosevelt himself has realized this, and he favors all efforts calculated to delay the inevitable.

The use of barbed-wire fences is destructive to many a species of deer—pre-eminently so in America. The Australian farmer is the arch-enemy of the kangaroo. In Asia many species of animals will soon cease to exist—the rhinoceros of India, the wild sheep, goats, and horses of the central Asiatic plains. The steinbock has disappeared from the Alpine heights; only a few are still kept at Aosta, in the game preserves of the king of Italy. In Germany, the aurochs, the bison of the ancient Teutons, extinct long ago, plays a part only in the legends of the "fatherland." We can but guess what this fine animal may have been like, so fragmentary is our knowledge.

The elk, too, have almost died out; a small number only survive. The same may be said of the beaver, formerly common on the banks of the Elbe.

But still more tragic is the gradual extinction of the fauna in South Africa, at the hands of the colonizers and civilizers of the "Dark Continent." Only a short time ago innumerable herds of all kinds of wild animals were to be encountered there.

The Boers had to fight, as it were, with the animals for every square mile of new territory. The natives, however, did not suffer the fate of the North American Indians. The advance of civilized man into their land did not destroy them; it only curtailed their absolute dominion over their own land, crowding them out altogether or limiting them to the less-desirable portion of

WEATHER-WORN ELEPHANT SKELETON

their soil. Moreover, they often joined the European invaders in their work of destruction, becoming acquainted with the use of fire-arms—they became hunters, either on their own account or in the service of the white trader.

So disappeared from South Africa the gnu, the quagga, the bontebok, the mountain zebra, the beautiful bluish horse-antelope, the Cape buffalo, the elephant, the powerful white rhinoceros, the black rhinoceros, the giraffe, the hippopotamus, and the ostrich. Thirty to forty years ago these animals were still plentiful; a hundred years ago their number was simply fabulous. They were to the natives of South Africa what the buffaloes were to the American Indians—the chief source of food; and, like the Indians, they used the surplus, but did not eat up or destroy the main supply.

Personally I am willing to accept the story of the lion in paradise lying peacefully beside the lamb as gospel truth. Are we not told by trustworthy explorers of the Arctic world that there the intelligent sea-lions, the seals, the reindeers, and many birds approach man without a sign of fear? This may have been the rule among animals before man, the *homo sapiens*, began to assert his supremacy over all creation.

The experience of those men in the polar desert has also been my own in the vastness of tropical Africa, in the heart of the continent which, though full of light, is commonly called the "dark." Often I have seen

beasts of prey mingling peacefully with their more gentle brothers. Wherever the native is not a hunter and the animals are not subjected to constant pursuit, there exists a friendly relation between man and animal. There many animals are as trusting and confiding as with us the fully or half domesticated birds and quadrupeds—horses, swans, squirrels, and many others.

The animal life of tropical Africa can be compared, even at the present day, with that which once existed in South Africa, though it hardly equals that of the most southern part of the continent, which, once upon a time, was a veritable paradise of animals. Reckless hunting has reduced considerably the number and size of the herds of elephants, and the rinderpest (the murrain), transplanted from Europe, has made terrible inroads among the herds of buffaloes. And yet I have found at certain seasons all kinds of animals massed together, so that, with a stretch of imagination, I can picture to myself the state of South Africa before the influx of the white man.

Would that I could but raise my voice loud enough to reach all who might care, and have the power, to save that great, rich, and beautiful domain of animal life before it be too late!

We should endeavor both to preserve the animal treasures and to collect specimens of the still existing species as long as we may, for our zoological gardens and our museums of natural history, for the pleasure

and education of young and old. Now it can be done; in a few years it may be too late.

We are still comparatively ill-acquainted with the fauna of colonial Germany. It has been my privilege to contribute to the museums specimens hitherto entirely unknown. All I have achieved in collecting skins, skulls, skeletons, and the like, I have accomplished without outside assistance, at my own financial sacrifice, and mainly through my personal efforts. I have been fully repaid by the fact that men, prominent as exponents of zoology, have given me their unstinted praise, and that I find in many a German museum my animal kingdom of tropical Africa preserved by the hand of skilled taxidermists, from the dwarf antelope to the giraffe, the rhinoceros, and the elephant.

II

CAMERA SHOTS AT BIG AND SMALL GAME

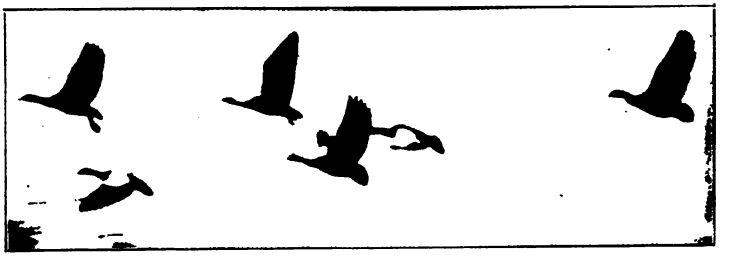
CAMERA shots at animals! Something of every-day occurrence, one may say.

And yet I confidently affirm that most pictures of animals—wild animals, I mean—which illustrate books of every description have not been taken "on the spot," with the characteristic surroundings of the animal's habitat.

Pictures taken in zoological gardens and game-preserves, frequently in a complete stage-setting, as it were, more or less retouched, often produce the impression that the animals have been photographed in field or forest. Writers on zoological subjects for the most part have to fall back on artists for the illustration of their books. Artists, however, are not always competent to interpret the life of the free animal. Most of them are not only personally unacquainted with the life of animals at large, but have to use as models badly prepared specimens at the nearest museum of natural history. Only a few artists have been in a position to

make native studies; their pictures and sketches are, of course, of great value.

But most books on zoology, and most books of travel, are illustrated in a manner to make the judicious weep. Even in books of recent date, pictures of stuffed animals, single and in groups, placed in the open, are passed off as photographs taken in the wilderness. This, of course, is plainly fraud, and the pictures are thus often on a level with the accompanying text, which is concocted by people who, at home, hardly succeed in killing a



NILE GEESE IN FLIGHT

hare, but who, in foreign lands, meet with the most extraordinary adventures.

With these glowing descriptions of imaginary adventures, the single narrative of my own experiences and observations cannot compete.

In one book of travel I read, with astonishment, how the writer had, literally, to "shoot his way" through herds of elephants; in another, how the writer dispersed elephants by throwing stones at them, so that his car-

riers might proceed on their march into the interior of Central Africa. These scenes are immortalized by drawings furnished by an obliging artist.

Next come descriptions and pictorial representations by genuine travellers and explorers, who, being truthful at other times, do not hesitate to exaggerate and misrepresent actual observations. There one may read, and also see, how they laid low, at the closest range, elephants, lions, and rhinoceroses facing the hunter with open jaws.

The lack of veracity among hunters, in all lands and climes, is proverbial; those hunting in distant and little-known lands may falsify with comparative impunity. But it is the plain duty of all travellers and explorers who have science and truth at heart to try to counteract the influence of books of the character described, and to see to it that fake pictures and descriptions are taken for what they are worth.

President Roosevelt, in the preface to Wallihan's book, justly remarks that it strikes him as preposterous that people who neither *are* hunters, nor *could* be if they wanted to, insist on decorating their homes with other people's trophies.

It is a common practice among travellers, in East Africa particularly, to have their hunting done by their native companions, the Askari, and, accepting their hunting stories as true, to write them up as personal experiences.

RESTING ON THE PLAINS

Some traveller has, let us say, put a bullet into a lion caught in a trap. This may be, under certain circumstances, a very thrilling and even dangerous exploit. But, instead of sticking to the facts, this lion-killer will furnish a description of a lion-hunt, garnished with exciting details.

It is incredible how the public has been gulled by descriptions of travels that were either wholly imaginary or composed, in the manner of a composite photograph, from the experiences of others than the writer.

In the interest of science and truth, it is essential that travellers, in their books, should distinguish between their own experiences and the reports of others, and that the illustrations be based on sketches by competent artists, if possible from life, either on the hunting-ground, or, at least, in zoological gardens, or—and this is the best method—on pictures taken on the spot, reproducing not only the animals, but also their typical environment.

We are in the dark, in many respects, regarding biological facts concerning our own native animals, and instantaneous pictures of these animals taken in a state of liberty are by no means numerous. This is still more the case with wild animals of virgin countries. Regarding these, personal observations of their habits and habitats are of eminent interest, and photographic reproductions of their life in full liberty are, according to the opinion of men like Professor Matschie and Dr.

Ludwig Heck, to be considered as valuable biological data.

To take such snap-shots at wild animals is not so easy a matter as the unsophisticated reader at home

THE AUTHOR'S CAMP

is led to believe by fraudulent writers of books of travel and adventure. In a magazine which has a large circulation I found the picture of a lion attacking a zebra, that had been taken, as the text implied, by a missionary in Eastern Africa. In the first place, missionaries do not consider it part of their mission to hunt wild animals, and do not relish, as a rule, the thought of being represented to their supporters at home as taking

part in such enterprises. Then, in the text referred to, our "missionary" is said to have taken "other scenes of animal life" at closest range—for instance, a lion watching for his prey. The truth is that the missionary had been incorporated into the picture-group to make it more acceptable to the people at home. The group of animals was simply made up of stuffed specimens placed on the steppe. To cap the climax of fraudulent representation, the stuffed zebra used by the ingenious fakir belongs to a species which has disappeared from East Africa, and can only be found in South Africa.

These instances of pictorial falsehood could be multiplied indefinitely. I shall give just one more. In an illustrated weekly paper appeared, not long ago, what purported to be a hunting scene from Egypt. A number of fellahs were going with big sticks for a crocodile —as if one could hunt crocodiles in this childish manner! It goes without saying that this was but a "living picture," and that the crocodile was stuffed.

My object in citing these examples of deception is simply to warn the reading public to challenge the deceivers, and to insist on the truth being told at all times, even when telling hunting stories, in case the writers want to be taken seriously. Of course, no well-informed scientist is deceived by these phantastic exhibitions.

On the other hand, it gives one genuine pleasure to

read the truthful report of a Schweinfurth and a Richard Boehm, the German travellers, and of reliable travellers of other nations, some of whom have been able to enrich their text by original sketches and pictures.

But absolutely trustworthy documents, in the form of photographs, were still lacking.

On my first expedition, in 1896, into the steppes of Central Africa, the wish arose within me to fix the powerful and glorious impressions which I received and to pass them on to others. I felt, at the same time, that this had to be done speedily, in view of the rapid destruction of the wild animals wrought by the advance of our civilization. How could I do it? There was the rub. I was neither an artist capable of sketching the wonders which the eye had espied, nor did I feel that I possessed the gift to voice by word-pictures, by graphic description, the revelations that had come to me in that glorious virgin world. Richard Boehm, who in 1884 succumbed on the shore of the far-away Upaemba Lake to a treacherous fever, and Kuhnert had been able, as competent artists, to reproduce, on a small scale, the scenes they had witnessed. But what layman would believe the representation of those gigantic masses of animals in the interior of Africa to be true if an artist-traveller could fix them on paper or canvas?

The art of the photographer alone, it seemed to me, could furnish the means to accomplish this end. The actual means were, however, limited; the difficulties

seemed insurmountable. Dr. Ludwig Heck did not cease to encourage me in my experiments. Through him I became acquainted with Captain Kiesling, who is an expert photographer of military subjects and is connected with the general staff of the German army. He initiated me into the secrets of his art—above all of telephotography. We were convinced that photography could be made subservient to my endeavor to fix on the sensitive plate that world of splendid animals. The magic rod! Where and how could we discover it? Patience and constant experimenting appeared to be the only road to attainment. Often, when we thought we held success by the forelock, we were rudely disappointed. That our apparatus was often partially wrecked by the flash-light explosives with which we experimented we considered only a slight accident.

So we studied and tested and contrived until, this time well equipped, I set out on my second expedition into tropical Africa.

I was fairly successful during the year I spent there, but not fully satisfied with the results of my photographic experiments.

After my return to Europe, Captain Kiesling and I took up once more the thread of our investigations and attempts at perfecting the camera, now aided by Mr. Goerz, whose optical institute in Berlin (Friedenau) is one of the best-known in the world. In one of his laboratories we were constantly at work. I am lasting-

LIONESS ABOUT TO SPRING ON AN OX

THE LIONESS, DISTURBED BY THE FLASH-LIGHT IN THE MIDDLE OF HER LEAP, TURNS ASIDE WITHOUT TOUCHING THE OX

ly indebted to Captain Kiesling, who, enthusiastically concurring in my ideas regarding photographing at night, assisted me in constructing a camera by means of which I was enabled to surprise the animals of the wilderness in their lairs and on their secret nightly errands.

Again I embarked, accompanied by my friend Dr. Kuenstler, for the "Dark Continent," better prepared than before. From Tanga we started on our inland expedition with one hundred and fifty carriers. And again I learned that theory and practice are two different things. After many disappointments, and suffering from an acute heart trouble and malaria, I felt compelled to give up the expedition and to seek recovery in my native land. That I survived I owe to my robust constitution; my recovery was a surprise to my medical friends.

With renewed vigor I continued experimenting and studying, profiting by past experiences, and for the fourth time I left for Africa, and this time my expectations, after some initial disappointments, were realized to a great extent.

The obstacles which the traveller is apt to meet are not only those which are put in his way by an unfavorable climate and inhospitable nature. A simple citizen, not travelling in an official capacity, is often also hampered by barriers put up by man. Even in the German colonies of East Africa travelling was not especially

easy. In spite of a passport, which makes in civilized countries for quick travel, I was held up for hours, in the glow of a tropical sky, until all the rules and regulations of a paternal government had been complied with. My endeavors to penetrate into the still unexplored regions about the Rudolf Lake, situated in English territory, were nipped in the bud. Permission to enter had been granted to me previously. I had filled my purse well for all emergencies of a financial nature, and I was just about to start from the Kilimanjaro when the permit was cancelled. It was a case of tit for tat, for some Englishmen had just been refused permission to travel in German East Africa. Thus all my plans in this respect were wrecked.

But in spite of all the hardships and disappointments, or rather on their account, I value the memory of those days beyond any price.

III

THE SOUL-LIFE OF ANIMALS

WHOEVER travels in the remote and almost unknown regions of Africa, not merely for the sake of material gain, but impelled chiefly by the desire to enlarge the domain of human knowledge, and whoever combines with this desire a sympathetic interest in the intelligence and the soul-life of animals, need never feel lonely. He will find, as the immortal Brehm did in the Sudan, comfort and solace and entertainment in the companionship of his animal friends, if he possesses at all the gift of appreciating their social instincts.

Prince Pless told me once that the keepers of the Indian elephants, the mahuts, are able to interpret about one hundred utterances of their animals, while the elephants understand almost every word of their guides. We find even among wild animals a number of species which, in a short while, show purely altruistic feelings of friendship for their masters. For over twenty years no young rhinoceros shipped to Europe had reached its destination alive. I was convinced that the cause of the death of these young animals was

rather psychical than physical; they had all been deprived of the society and care of their mothers, who had been killed. I made a goat take the place of the mother rhinoceros, and in a few days the young animal formed such a close friendship with the goat that they became inseparable. Even to-day, in the confinement of the zoological gardens, the rhinoceros clings to his old friend the goat and her offspring.

EUROPEAN STORKS IN AFRICA

I am convinced that the friendship between my rhinoceros and the goat and her kid is prompted by purely altruistic, ethical motives.

One can read in most books on animals that the rhinoceros is credited with a particularly large amount of stupidity. This is true if we compare this animal's mind with the many-sided and well-developed human mind. But this same animal is, in certain respects, so highly developed mentally, that it has so far succeeded, like the elephant, in escaping total destruction at the hand of man. In this regard it has been

more successful than many a slow-witted tribe belonging to the human race. We must take into consideration the fact that many animals possess an exceptionally keen sense-perception — yea, perhaps, organs of sense unknown to us.

I have often been asked whether I could explain the fact that the rhinoceros invariably knows the location of every water-pool in its home region; that it carries, so to speak, a topographical chart of the native steppe in its head. I cannot explain this otherwise than by assuming that the rhinoceros possesses an almost miraculously keen sense of locality, developed by long practice, transmitted to successive generations, and further developed by each in turn. I have often followed rhinoceros tracks which led in a straight line to a place giving every indication of a little dried-up pool, but which at length turned at right angles, and brought me, after a few more hours, to a small body of water. Man, with all his knowledge, will die of thirst, where a rhinoceros will be saved by its instinct, which, after all, is in this case accumulated experience.

Many other animals have been to me, in far-away Africa, like comrades, in joy and in sorrow. Among them I count a young elephant which I lost, and a couple of tamed baboons, who were almost beside themselves with joy whenever they espied me at a distance that no human eye could reach.

Among the African birds I found the marabous, the

goitre storks, to be most intelligent and, after their distrust was conquered by patient kindness, affectionate companions. My marabous moved about the camp free, uncaged and unfettered, built their nests and

THE COOK AND HIS FRIENDS THE MARABOU STORKS

made no attempt to fly away. On my return to camp they would receive me clattering, lining up before my tent like a body-guard, and trying to caress me with their mighty and dangerous beaks. And, mind you, these birds were not born in captivity, but had been caught when full-fledged, some of them over thirty years old. I brought one of these marabous with me to Europe. When Dr. Heck met me at Naples he was

simply dumfounded by the tender friendship the bird showed towards me. Even now, when I visit the zoological gardens in Berlin, the present abode of the bird, it recognizes me at once in ever so great a crowd.

"There are more things in heaven and earth than are dreamed of in our philosophy." This saying of Hamlet's applies appropriately to the soul-life of animals, of which we have only a meagre conception. The success of wireless telegraphy depends not on the strength of the electric waves alone, but just as much on the sensitiveness of the receiver. So we must bring to the study of the soul-life of animals a sympathetic mind besides a thorough knowledge of zoology. We must live with the animals as we live among strange peoples whose peculiarities we wish to understand. And if we do so, we may come to realize that what we have hitherto been calling instinct—a seemingly unchangeable gift bestowed on animals by provident nature—is, after all, intelligence, which has developed by degrees into what it now is, and is still developing towards higher forms. Indeed, "there are more things in heaven and earth. . . ."

IV

THE MASAI-NYIKA

IN clearly defined outlines lies before us, bathed in a flood of light, the Masai-Nyika, the great steppe of East Africa. The clear atmosphere deceives our eyes, making the distant mountain chains seem to be much

IN THE MASAI COUNTRY

nearer than they really are. Years ago this immense tract of land appeared to me, a new-comer, to be like a sealed book full of mysteries; to-day the book lies open before me, and I am able to decipher its characters. The reading of the book is beset with many hardships. It is not easy to trace the letters and words in the tracks and traces left by the animals of the steppe, especially the herds of elephants and rhinoceroses whose trail is punctuated by broken trees and trampled bushes.

The conformation of the East African steppe is most peculiar. The ground is now flat and even, now undulating, now hilly, now traversed by mighty and high mountain chains. On the table-land surrounding the Kilimanjaro, a number of high mountains rise up into the clouds. The highest point of the Kilimanjaro group, the Kibo, eighteen to twenty thousand feet high, is capped with eternal snow and ice.

The surface of the steppe was formed by volcanic activity. If we could rise sufficiently high in a balloon and gain a comprehensive bird's-eye view of the East African steppe, we would view scenery similar to that which the surface of the moon presents to us. About a two days' journey from the Kilimanjaro the Meru mountain, nearly eighteen thousand feet high, rises from the plateau. Around and between the world of mountains the steppe spreads out before us, far and wide, in the bright and blinding light of the sun, at an

FAVORITE WATERING-PLACE FOR ELEPHANT AND RHINOCEROS

average elevation of three thousand five hundred feet above the sea.

In the rainy season the massika, the Nyika (steppe), is clad in verdure of grass and trees; silvery streams wind their way through it; temporary lakes, square miles in extent, dot it. In the dry season the yellow-brownish ground looks like a vast threshing-floor; plant life seems to be extinct. Only now and then the green of trees and bushes delights our eyes, wherever the depressions of the ground retain some reserve pond of water. At times we may thus see immense groves of green locust-trees or of thorn-trees, the latter, resembling our fruit trees, forming, as it were, large orchards. Many plants, the so-called succulents in particular, are able to outlive a dry spell of several years.

Ant-hills, often several yards high, and firm, like fortifications, may be seen in the Nyika. When the rainy season approaches, the white ants, their wings having grown, leave their native hills to emigrate and to form colonies elsewhere.

Here and there, like a remnant of primeval times, we meet the well-known monkey-bread-tree. Grotesque in form, its mighty trunk and branches, covered by a shining gray bark, arrest our attention. But the traveller soon learns to know this tree as one of his best stand-bys in the dry season; for within the hollows of its trunk it often conceals a treasure of priceless value—namely, water.

KILIMANJARO—SIX THOUSAND AND TEN METRES ABOVE SEA-LEVEL

It is no hardship to travel through the steppe during the rainy season, though the traveller is often forced to make his way through trackless thickets, thorny bushes, and sharp grasses reaching above his head.

In the dry season travel is slow and dangerous, water being scarce and often entirely lacking. Before you start out, you had better make sure of your next watering-place. Often, where you expect to find one, you will discover a dried-up depression in the ground. Moreover, your carriers are apt to be very thirsty after a day's march of over eighteen miles, carrying up to sixty pounds on their heads. These men are very patient, indeed, and of great endurance. They may become tired and exhausted, but they will not leave their burdens behind to hasten to quench their almost unbearable thirst. They know full well that their *rafiki* (friends), who reach the camping-ground first, will hurry back to them with gourd-bottles well filled with the precious liquid.

Like the Tundra of Asia, so the East African Nyika may attract the venturesome traveller and hunter for a time, and, at times, entice him to come back to it. But the steppe will not permanently hold the visitor from a temperate clime. For long residence might mean death—death by that slow but sure destroyer, malaria.

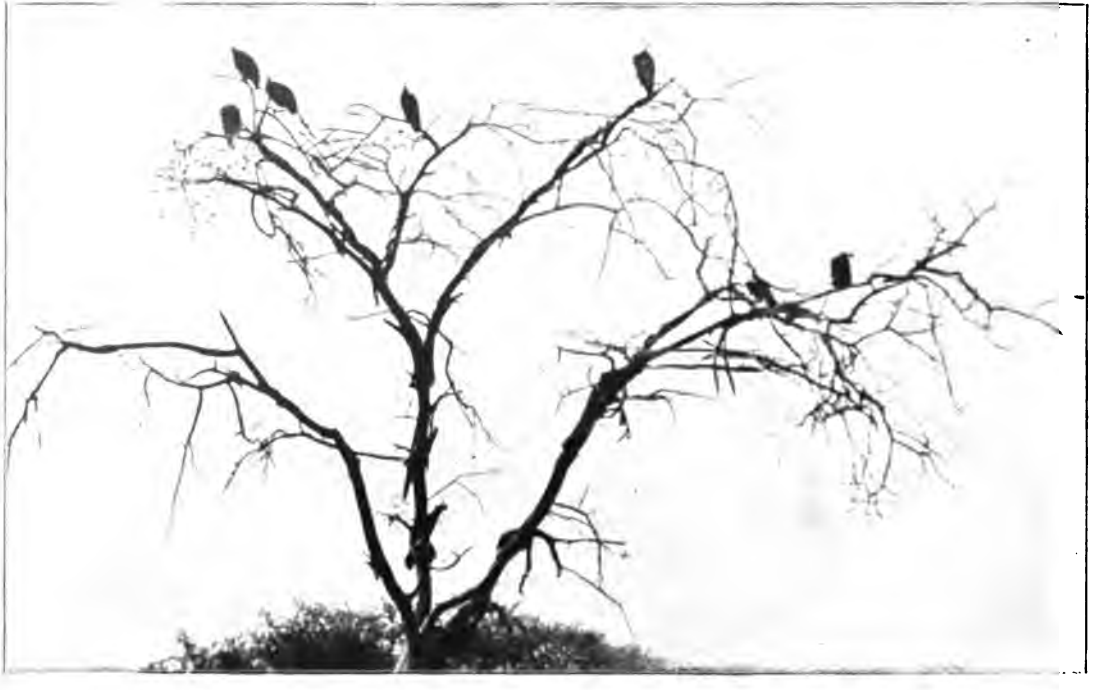
V

STEPPE-FIRES

EVERY year wild-fires sweep over the length and breadth of the East African steppe. Now and then, when the dry season sets in, one may notice on the far horizon flaming lights which turn red as the day declines and the night advances. They are distant steppe-fires in parts of the country where the grass has already grown dry. When they occur on distant high plateaus they look like gigantic torches throwing their ghastly light far into the surrounding darkness.

When the dryness has spread over the whole country, then the traveller, as well as the native, will set fire to the grass — the traveller to remove it as an obstacle, the native to prepare the ground so that with the first rain-shower the earth may yield fresh grass for grazing.

The fires move on steadily, but slowly—not, as one may read in many a book of travel, with destructive, lightning rapidity — eating up grasses, bushes, small trees, and even attacking with their fiery tongues sturdy trees of gigantic size. But it is an ill fire which does not bring good to somebody. In the tracks of the fire, mar-



VULTURES OVERLOOKING THE CAMP

abous, storks, vultures, kites, and other birds of prey follow, to feast on roasted locusts and other small-fry.

The mammals of the steppe either retreat before the fire or hide in caves and wash-outs, and on their return to the plain they relish the young grass. These African animals seem to consider the fire, like Mephisto, a "friendly element." The baboons, without a sign of fear, watch the fire-waves pass by their trees.

These fires are in no way a danger for the traveller, if he be at all watchful. He only needs to set the grass around his camp on fire, and in this way to make a clearing which will protect the camp against the approaching larger fire. Of course, accidents may happen, and the traveller may be caught napping, or be surprised in spite of his watchfulness. On one occasion I had pitched my camp among dry reeds, when suddenly it was threatened by a wild-fire. All we could do in this emergency was hurriedly to save our camping outfit and ourselves. I lost a considerable amount of valuable material—prepared skins and the like—which I had collected. As we retreated, we were pursued by a discharge of small-arms—some of the cartridges left behind exploded singly and in volleys.

Sometimes the repeated attacks of many fires lay low even the big trees. They burn slowly and, in a calm, steadily, taking the place of lanterns at night, until they are charred and at last fall into

ashes, which are scattered by the first strong gust of wind.

Never shall I forget a mighty fire that I witnessed near the Longido mountain, at the foot of which I was

A HERD OF GRANT GAZELLES

encamped. The whole mountain seemed to be on fire. Whipped into fury by a strong and steady wind, the fire rolled over the mountain meadows and spread into chasms and crevices. Its glare turned night into day. It seemed as though the mountains were alive, and strangely fashioned clouds of smoke made it appear as if fantastic beings were fighting one another near the mountain-top. Now the flames seized some meadow of dry grass and reached up into the skies in a sudden blaze; now mighty masses of smoke darkened the mountain, to be dispelled a few moments later by a

sudden burst of fire illumining the mountain peaks with a glowing light. For days and nights the fire raged.

But the big game of the steppe, unconcerned and unmoved by the mighty spectacle, came as usual to the pools of water near by, and not far from the camp crouched my native guards, dark-skinned, half naked, with shields and spears and swords, humming their ancient battle songs.

And I, viewing the wonderful and unique sight, saw passing before my mind's eye the heroes and gods of the Norse sagas, into whom that great German magician of

GRANT GAZELLES ON THE MARCH

Baireuth has breathed new and everlasting life. And every evening, at the approach of night, as long as it lasted, I gazed at the "magic fire" and listened to the voices in the air singing, "At your command a fire shall burn!"

VI

JOURNEYING WITH PRINCE LOEWENSTEIN TO THE KILIMANJARO

WE arrived at Tanga early in February, 1903. It was my fourth journey to East Africa and my third expedition into the territory lying about the ice and snow covered Kilimanjaro.

Our caravan of one hundred and seventy carriers and Askari (native guards), headed by my trusty Mniampara Maftar, had been organized for a few days. We went by rail to Korrogwe, the present terminus of the road. Then we set out on our march, travelling by way of Mombo and Masinde towards the Kilimanjaro. We did not follow the regular caravan road, but after crossing the Mkomasi River we marched along the Rufu River.

Heavy rain-showers had preceded us. I was travelling on familiar ground, but I had never seen it clothed in such luxuriant verdure. Green grass covered the earth; the succulent plants were blooming with new vigor; thick foliage adorned the grotesque monkey-bread-trees; butterflies and swarms of insects filled the air.

DRILLING MY ASKARIS

Heavy rains in the tropics, while they further vegetation, are, on the other hand, breeders of disease. During the damp weather most Europeans are apt to fall victims to malaria. The animals, food and water being plentiful, were running all over the country.

Prince Loewenstein succeeded in shooting several antelopes. The immense flocks of storks were of great interest to him. Soon they were to start on their homeward flight towards his—and my—beloved fatherland.

We followed the Rufu River and pitched our tents after a few days' march. Here Prince Loewenstein killed the first rhinoceros. The same day we met unexpectedly a herd of about sixty buffaloes resting in the shade of locust-trees. This sight was to me as novel as it was to the prince. I had never been fortunate enough to meet a herd in the daytime and in the open field. So far I had come upon them only in thickets and reedy swamps.

The prince killed a cow buffalo and I a bull. We considered ourselves very lucky and were highly satisfied with our day's work. Two days later the prince tracked and shot a giraffe of goodly size.

I had repeatedly tried to take snap-shots at game with my improved long-distance camera. But the results had been far from satisfactory. I had, however, thus familiarized myself with the apparatus, and after

a while I took a good picture of a group of oryx antelopes.

I had sent some of our men to the Rusotto station for maize. After their return we broke up camp and marched slowly along the river, up-stream. We could

PRINCE JOHN LOEWENSTEIN AND THE AUTHOR

afford to proceed at our leisure, for game was plentiful. Prince Loewenstein could therefore indulge, to his heart's content, in hunting, while I snapped my camera at all "sorts and conditions" of animals.

Myriads of locusts had settled in the high grass, while clouds of them filled the air in the wake of our

caravan, a welcome prey to hundreds of small falcons and other birds.

One day, travelling through the high grass of the steppe, I was about to mount my mule—we had taken along, from Italy, a number of these hardy animals—when suddenly three lions crossed our path and disappeared in a thorny thicket. It all happened so quickly that neither the prince nor I got a shot at them. We

CORMORANTS FISHING

stopped for a few days, hoping to find their lair, but our hopes proved futile. However, we had leisure to become acquainted with the many kinds of birds which

IBIS NESTS

live near the river and feed on its finny tribes. From sand-bank to sand-bank they fly to catch the fish, while they in turn are the prey of crocodiles.

There a Nile goose has alighted on a sand-bank. Suddenly the head of a crocodile appears above the waters; but the goose has espied him; immovable they face each other. A sound of warning by the goose to her sister-geese, and the crocodile disappears.

The fishing-gull, the ibis, the heron, the goat-sucker, and many others, all like the taste of fish—and so do we.

Not far from our camp I found a large pond, one of the many with which the neighborhood of the river was

dotted and which had been formed in the depressions of the ground when, after the rainy season, the river had receded into its bed. In this pond my men caught six hundred pounds of palatable shad in one day, to the great delight of the whole camp. We caught a few young Nile geese and also two small crocodiles, in one of which we found a young goose, entire.

I almost suffered the fate of the bird. Crossing the river the next day in company with two natives, we lost an oar and the control of our boat. We drifted irresistibly down-stream towards some rapids. Below these a number of crocodiles were ready to receive us with open jaws. Our little boat fortunately drifted

THE FISHING PARTY'S RETURN

THOMSON GAZELLES, BY FLASH-LIGHT

against some projecting rocks and capsized. We managed not only to save ourselves by climbing on the rocks, but also to hold fast the overturned boat. The water near the rocks was too deep and too swift for us to wade or to swim across. When our guards and carriers saw our plight—for the accident occurred almost opposite our camp—they quickly came to our aid. The guards, firing with their Mauser rifles at the crocodiles, kept the expectant animals at a distance. Prince Loewenstein proved in this emergency a friend indeed. He formed the carriers into a rescue-party. Holding on ropes, and thus aiding one another, they entered the water, and, approaching us from above, pulled us up towards them. We then proceeded on our expedition along the river. It was now towards the end of March, and the rainy season, the *masika mkubwa*, was about to set in. One night, as we were nearing the Kilimanjaro, a terrific rain-storm came upon us suddenly and violently. The air was charged and quivering with electricity; flashes of lightning streaked fantastically the dense darkness; in a few minutes our camp and the interior of our tents were flooded.

The grandeur of such a gigantic manifestation of elementary forces, presented by such a tropical storm, defies description. Whoever has been privileged to watch a storm of this kind will be thrilled by the mere memory of it as one of nature's grandest spectacles.

We arrived in due time at Moschi station, at the

foot of the Kilimanjaro. My friend Captain Merker received us with open arms.

The rainy season began now in earnest and forced us to remain in Moschi. The genial hospitality of Cap-

VULTURES SCENTING CARRION

tain Merker, one of the most companionable of men, would, I was sure, help us to while away the time. But soon, alas! not only he but also my friend and companion Prince Loewenstein set out for the coast. No European can live with impunity any length of time under the tropical sky of East Africa. Captain Merker had stuck to his post for seven years. Moschi is a de-

cidedly unhealthy place to live in, though there may be worse ones. The white man suffers there, as elsewhere in tropical Africa, from malaria; domesticated animals, native and imported alike, die off in a short time unless they are well stabled and constantly looked after.

Captain Merker had received a long leave of absence, which he meant to spend in the dear old fatherland. Prince Loewenstein had intended to explore the mountain range of the Kilimanjaro. Unfortunately for me, he had received news which made his presence in South Africa imperative. Their departure deprived me of an old friend and a new one. Danger and deprivation, shared in common, tend to endear men to one another. I missed the prince on more than one occasion, for he was a splendid companion and helpmate, and particularly fitted by his courage and hardiness for the life of an explorer in the African steppe. While stopping at Moschi, I discovered, in the beginning of April, a new black species of genet. One of these catlike animals was killed by a herdsman at night, when she was attempting to steal a young goat. Black felines are apparently not very rare in East Africa. We are told that the negus of Abyssinia often presents black leopard-skins to his dignitaries as a sign of his distinguished favor. I myself have killed several black servals near the Kilimanjaro. As far as we know, there are no entirely black lions, but lions with black manes do exist.

On a beautiful sunny day, towards the end of the

rainy season, I left Moschi station with my caravan, to encamp near the Himo River, on my march to the Ndjiri swamps. I considered myself very lucky when, on this day, I succeeded in photographing from a considerable distance some zebras and antelopes. For the steppe around the Moschi station, formerly stocked with game, is now almost completely despoiled of animals. It is not fair to make the European hunter and explorer responsible for this condition of affairs. He is, after all, a sportsman; he kills, but he does not butcher. The crime is rather to be charged to the Askaris, the native guards, who have been in the habit of wantonly shooting down every living thing that comes within range of their rifles. This has been stopped, as far as possible, but too late.

Also the cattle-traders and the official and unofficial caravans crossing this country must be blamed for much of the reckless killing of animals. The officials and retainers of the so-called ostrich-farm company alone have for ten years past reduced the animals in the Kilimanjaro steppe to at least half their original number.

The first commandant of Moschi, Von Eltz, killed in the Moschi steppe sixty rhinoceroses; to-day one hardly catches sight of a single one. The second day after our departure from Moschi we marched, although the rain poured down in torrents, as far as Marangu. There I enjoyed the hospitality of Mr. Merkel, a former corporal

MOSCHI MILITARY STATION

in the German colonial army, who managed his small ostrich farm most successfully.

After a long march through the Rombo region, my caravan reached Usiri. Mangi (chief) Manibua supplied us liberally with beans. It is rather difficult to learn much about the Usiri land from its inhabitants, for they are very shy and diffident. The country is partly covered with large banana plantations; the rest is almost a desert from lack of water.

From Usiri we marched to the Ngare-Rongai River, crossed it, passed Marago-Kanga, a drinking-place, and at last reached the eastern Ndjiri swamp, called "Ngare O'ssiram" by the Masai, after the small koodoo—*O'ssiram* in the Masai language—which, in days gone by, could be found about these swamps in large herds. This neighborhood was for me *terra cognita*. I had explored it in 1899. There I pitched my tents, intending to make a long stop, to explore the country farther, and to take as many pictures of animals as possible.

VII

ON THE SHORES OF THE NDJIRI LAKES

THE rainy season had come to an end as suddenly as it had begun. Within three weeks immense masses of water had flooded the parched steppe, filling the pools, large and small, to overflowing. The dry, yellow-brown ground, as if by magic, had been covered with green; trees and bushes were filled with new life; rivers and rivulets had been changed into rushing streams.

The vast depression near the western foot of the Kilimanjaro range, the deepest parts of which are known as the western and eastern Ndjiri swamps, is like a big basin, into which flow masses of water; all the lower parts of the wide steppe are periodically transformed into lakes. The animals had, during these weeks, spread over the whole country, for everywhere food and water could be found.

This feast of plenty soon reached its zenith; the earth swallowed most of the precious liquid, and vegetation began to decline. Slowly the roving animals gathered again around the perennial reservoirs of water

and food where they were wont to pass the dry season.

But the birds which live near the swamps and rivers now found a fine crop of water-plants, filled with seeds, floating on the lakes of the Ndjiri swamps. Immense

NILE GEESE

flocks of geese and ducks squatted on the marshy ground. Thousands of gnus and zebras pressed up to the shores of the lakes, the water of which was receding as the dry season advanced; and again the rhinoceros returned nightly from the steppe to his drinking-place near the swamps; and antelopes, water-bucks, wart-hogs, and buffaloes drew nearer to the swampy region.

This was the right time for me to hunt these animals and to study their ways. Therefore, I encamped on the treeless plain near the lakes and lagoons and the reedy marshes, leaving behind what I did not need—especially my animals, mules, and cattle. These would doubtless have been plagued to death by the flies and

mosquitoes of the swamps. The necessary fuel and the drinking-water had to be fetched from a distance, for my tents stood on arid, salt - encrusted ground. Sand-dunes, swished together by the wind, and isolated small lakes surrounded my camp. Clouds of gnats would rise from the swamps with the setting sun and infest man and animal. Even during the day hundreds of them could be found in the tents.

One may readily imagine that the taking of pictures

FLAMINGOES IN FLIGHT

by flash-light at night under these conditions was anything but fun. To protect my body from the sting of the flies, I had to dress as if for an expedition to the

north pole. My hands and face, however, I could not cover so well that they were immune. My black native guards and carriers often could not get a wink of sleep during the night, although they stretched them-

CORMORANTS DRYING THEIR PLUMAGE

selves by the smouldering camp-fire; they took their naps in the daytime

The Ndorobbos and Mkambas of the neighborhood were in the habit of hunting the big game near the lakes and swamps. I found many pits dug in the ground where they took their stand and from which they shot their poisoned arrows to lay low the gnu and the zebra, and even the rhinoceros. But these stands had, ap-

THE MARCH THROUGH THE SWAMPS OF THE NILE. KILIMANJARO IN THE BACKGROUND

parently, not been occupied for some time, and I myself refrained from disturbing the animals. From my camp, as a vantage-ground, I could thus watch herds of gnus and zebras, and take snap-shots at will. They were, unfortunately, not all successful.

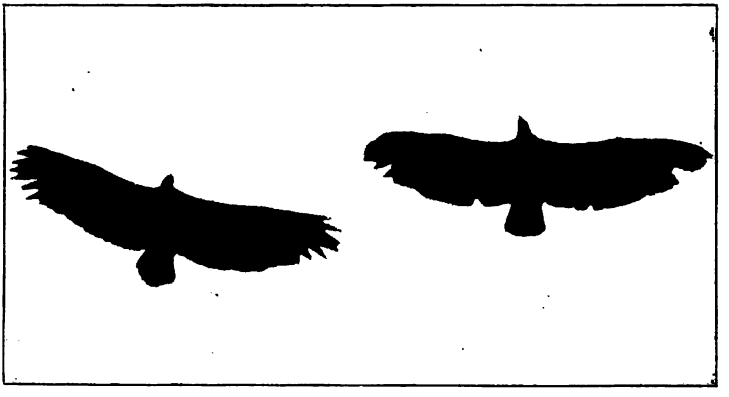
These quadrupeds fed amid flocks of crown cranes and Nile geese; hundreds of gazelles moved about among them; the male gnus grazed away from their herds, each by himself, clearly outlined in the evening light. No shallows break the surface of these lakes. The water reaches up to our hips in those places where the steppe has been drained, by natural canals, into the swamps; elsewhere the average depth is about two feet. The shores are covered with thickets of reeds; the surface of the water is covered, as far as the eye can reach, with water-plants, among them the *pothomachæton*, indigenous also in Europe, recognized and classified by me for the first time in German East Africa.

I waded about with my native companions for hours in this enormous sheet of water, watching the white heron, the black-and-white-feathered "sacred" ibis, the black heron, the thousands of geese, and the flocks of red flamingoes on the far-off shore—in short, birds of many kinds filled the air, flitted over the water, and lined the shore.

A thick carpet of plants is spread over the surface of the water, making it look almost like firm land, and impeding our progress while we are wading, step by

NILE GEESE TAKING FLIGHT

step, through the entangling masses. The burning sun causes the water to evaporate, and the air near the surface becomes humid almost beyond endurance. Crowds of dwarf cormorants have alighted on the clusters of locust bushes on the small islands of the lakes,



VULTURE AND RAVEN

spreading out their wings to dry in the sunshine. Neither these nor other enemies of the finny tribes have succeeded in decimating their number. Shad abounds in these waters. You may, within half an hour, catch so many, some of them five and more pounds in weight, that it will take four men to bring them to the camp. Were it not for the mosquitoes and small gnats which creep into your ears, eyes, and nose, you might spend days in wading about and studying the wonders of swamp life.

A HERD OF ZEBRAS STARTLED BY THE FLASH-LIGHT

Thousands of reed-birds fly about us while we are stalking along, twittering and chattering familiarly. Suddenly a tiny water-mouse attracts our eye, and at the same time our ear is filled with the rumbling grunt of the most gigantic mammal of these swampy regions, the uncouth hippopotamus.

The peaceful enjoyment of these scenes is often rudely disturbed. No crocodiles were known to haunt these lakes. It was, however, not proven that there were none.

One day, traversing one of the temporary lakes near the big swamps, I noticed, not far ahead of me, a violent commotion in the water. My native companions took to their heels, screaming, "Mamba! mamba!" which means crocodile. The two animals that moved in my direction, the backs of which only emerged at times above the surface, appeared to be crocodiles. I myself, believing discretion to be the better part of valor, followed my men, who could not be made to stop until they had reached the shore.

I soon became convinced that the animals were not crocodiles, but big snakes. Wading back for some distance, I succeeded in killing three pythons over twelve feet in length. They had been after the eggs of the swamp birds.

Every evening I took my stand on the small islands of the lakes. The possible danger of being suddenly surprised by hippopotami only increased the pleasure

VULTURES WATCHING THE CAMP

of hunting ducks and birds of all kinds. Night, too, had exciting surprises in store for us.

In many a dark and cloudy night the roar of lions could be heard for hours, so that we became used to it, and were sung to sleep by this strange lullaby. Then again, on moonlit nights, the bulky forms of rhinoceroses could be seen moving about near the camp. It was a sight never to be forgotten, strange and impressive, the big animals standing out in clearly defined outlines from the steppe bathed in moonlight, the snow-clad mountain-tops of the Kilimanjaro looming up majestically behind them.

VIII

EVENING IN THE SWAMPS

HOW wonderful are the evenings, how wonderful are the nights in the swamps of tropical Africa! How strangely impressed is the traveller from the Northern countries by the rapid sunsets and the short twilight! Thousands of glowworms begin their fire-dance; the deafening noise of the cicadas is punctuated by the hoarse croaking of the frogs; myriads of mosquitoes begin to swarm from out of the papyrus thickets, humming and buzzing.

The birds of the swamps, too, become active and join in the chorus of noises. A quaint clucking and chuckling is heard. "The swamp-hen is talking with the fishes," the natives say. Their belief is based on the fact that a certain shadlike fish, when caught, utters similar sounds—in short, a confusion of noises and voices fills the air.

The fires in my camp are lit; the pale crescent of the moon breaks through the clouds—there, a voice sounds from the wilderness of the swamp, so powerful that it shakes not only the air but the very earth. It is an

THE AUTHOR IN HIS TENT

old male hippopotamus—*ol makao*, called by the Masai, *kiboko* by the Waswahili. He is guiding his herd to the land, and leading them to the feeding-ground by the well-trodden path tunnelled through the bushes and thickets.

Just before night one may witness an interesting scene. Hundreds of thousands of finchlike birds are swiftly flying towards the swamp to feed, and then to rest in the papyrus thickets. In close masses, strung out in a long, continuous line, almost brushing the top of the papyrus woods, they move along, suggesting an enormous snake in their flight. They follow their leaders so promptly, they carry out the various evolutions so automatically, that I am convinced that they have means of communication with one another that we cannot perceive with our senses. Also multitudes of pigeons and guinea-hens drink from the water of the lakes and then rest for the night near by.

Every evening at the same time, almost to the minute, when the sky is still tinted with the many delicate colors of a tropical sunset, flocks of crowned cranes come flying slowly towards the water, uttering strange cries and making a peculiar sound with their wings. The twilight is of short duration in the tropics. It has now become fully dark, and we may have strayed away from our camp. A long-drawn roaring and rumbling sound, repeated at intervals, warns us that the king of animals is getting ready to hunt. We had better retreat to

CRANES FLYING

our camp, for other unwelcome sounds begin to be heard. Somewhere between us and the camp a striped hyena is uttering her hideous howl; two jackals are responding not so very far off. Just ahead of us some animal takes fright, and, running with long leaps, disappears in the reed thickets. It is, fortunately for us, only a reedbuck. Now we have reached our camp. The fires have been our guides. Filled with the many impressions and emotions called forth by the magic of a tropical night, we lie down to rest.

IX

BY THE BROOK

ON my fourth journey in East Africa, in the autumn of 1903, I encamped in the higher parts of the steppe near a mountain brook, where it entered the low lands, to lose itself, after a few miles, in the dry ground. In its course through the lower steppe it served as a drinking-place for the animals of the surrounding region, and I could trace their paths far and wide. Their number was enormous, for the dry season had more and more limited the water supply. The brook flowed between high grass, reeds, and thorn thickets, and numerous lions had, at that time, their lair near by. Forests of reeds covered its lower, dried-up course. There the lions and rhinoceroses were hiding during the day; from there, at night, they started towards the brook to prey upon the animals which, impelled by thirst, sought the water.

Long strings of sand-hens come flying to the brook early in the morning. Other birds follow, from the smallest to the largest, and we have a splendid opportunity to study the East African bird world.

MARABOUS AND STORKS FEEDING ON GRASSHOPPERS

BY THE BROOK

The impallah antelope alone among the larger mammals seeks the brook during the day; the rest follow in the evening or during the night. The impallahs, often in troops of fifty to one hundred or more, have a great liking for the tender grass growing in the small depressions near the water. They graze together, male and female, until the latter retire into the thickets and the high, dry grass to give birth to their young ones. When they see or scent the approach of an enemy, man or beast, the impallahs run to cover. Their flight, in long, high leaps, is a sight which delights the hunter's heart.

We leave our camp towards evening to watch the game going to the brook. The dwarf antelopes have started on their path. They scent our presence and go to cover.

Although my sight is keen and well trained to discover game in hiding, it was very difficult for me, in the beginning, to distinguish the impallahs from the surrounding thicket, the color of which, as a rule, blended with that of the animals. My native companion used to espy them at once.

It is a source of great delight to me, when the wind is favorable, to watch these big-eyed, graceful animals browsing, with their sensitive snouts to the tender grass and young sprouts of plants and bushes. The nearer the sun approaches to the horizon, the larger grows the number of birds and quadrupeds about the brook and neighboring pools. My old friends, the in-

telligent marabous, eagles, rollers, guinea-hens, and many other birds, are perched on the bushes and trees.

Troops of beautiful zebras may now be seen coming over the rolling, hilly steppe, headed by experienced guides, the older stallions. Carefully they select a spot near the water, under the lee of the bank.

With them, or soon after them, the gnus approach, and here and there appear small droves of gazelles. The sun is setting. The gnus and zebras have reached the water. The guides sniff the air; they scent no danger. The animals now quench their thirst to their hearts' content; the timid stragglers have come up; hundreds of animals fill the brook—a unique, a wonderful sight!

They have now drunk their fill. A gust of wind from the mountains, passing my stand, blows in their direction. The zebra stallions utter a peculiar snort. The animals, as fleet as the wind, take to their heels and disappear among the hills of the steppe. They are hidden from my sight, but the bellowing voices of the stallions still strike my ears. It has now grown fully dark, and soon the beasts of prey will prowl about. Therefore I had better return to the camp.

For a time silence reigns on the steppe, upon which the moon is shedding her silvery light. But soon sounds familiar to the hunter's ear break the stillness of the night. The bellowing of the jackal and the grewsome howl of the striped hyena are heard, not

WATER-BUCKS FEEDING

only by us, but also by the zebras, which, led by the neighing stallions, shake the ground in their flight. The roar of the king of beasts is lacking to complete this concert of animal sounds; but we know full well that the lion will hardly raise his mighty voice before midnight.

I had noticed in this neighborhood numerous paths and traces of lions. Thirsty animals, at least, must have their lairs near by. I did not set traps, nor did I intend to hunt the noble beast. My object was to snap my camera at the king of the desert at night, by means of the flash-light. This meant long and patient preparation; above all, I had to study the lions' paths and their daily, or rather nightly, habits.

The night advances. The heavy tread of many hoofs proves to me that big herds of animals are still seeking the brook; they are, most likely, antelopes, shy oryxes, and mighty elands. They, too, are circumspect, for they also know that the lion, their mortal enemy, is in hiding in the reed thickets of the lower brook. Hark! There is no mistaking the sound. As if coming from the bowels of the earth, a rumbling growl swells into a mighty roar, to die away again into a ghastly groan. Silence ensues. Then the roar is answered by other lions—a mighty chorus, the mightiest on earth! I can distinguish as many as seven lions' voices coming from different directions and distances. The animals near the brook, too, have heard the sound of the awakening

ZEBRAS ON THEIR WAY TO THE BROOK

beasts of prey and are making in haste for the wide steppe.

Now the roar of a lion is heard dangerously near. My men are aroused from their sleep and stir the camp-fires. Those on the outskirts of the camp draw nearer the centre, the Askari guards become more watchful. The precaution is afterwards proved necessary, for next morning the impressions of mighty paws are to be seen not far from where some of my men had been sleeping before they drew nearer the fires.

I know very well that my statement that lions may be found together in troops will not easily be credited; but my experience has proved this to be the case—fortunately for me, inasmuch as the number of lions prowling around my camp at the time of which I am speaking greatly facilitated my attempts to photograph them at night by means of flash-light. The best proof that I finally succeeded in doing so, in spite of the enormous difficulties and notwithstanding many abortive efforts, lies in the pictures to be found in this book.

My method of procedure was simple enough, but dangerous. Towards evening I would bind some animal, as a rule an ass, to a tree near the path of the beasts. The animals used as bait are not exposed to any suffering, for the lion kills his prey quickly with one bite in the neck. Taking my stand near by, and placing the apparatus in position, I waited until I heard and saw the beast approach its prey. It goes

THE LIONESS FORSOOK HER PREY AS THE FLASH-LIGHT FLAMED

without saying that I had to register more failures than successes.

One of the most valuable pictures I ever took, the one showing a lion and lioness attacking an animal fastened to a tree, I almost spoiled in trying to develop it in my camp. It was saved by the art of my friend Captain Kiesling. I can hardly describe the joy I felt when, after months, the captain's telegram, containing the one word "*Saved*," reached me in the wilderness.

From this picture it is evident that lions do not approach their prey leaping, but rather crawling close to the ground, and also that the lioness leads in the attack. Many of the lions which I had occasion to watch approached the animals whom I used as bait within a few feet, but then turned away to hunt their accustomed prey, the wild herds of the steppe.

These days and nights were full of anxiety, suspense, and also disappointments for me. One day Masai warriors carried off one of my photographic instruments, and, as a result, I had to increase the number of guards. But when I did finally accomplish my purpose—when I caught the king of animals, the mightiest beast of prey, in the act, as it were, and held the documentary evidence on the small, sensitive plate—my joy was simply without bounds. Even my stoic blacks became excited and discussed this memorable event for many days.

One seldom meets a lion in the daytime. During

my photographic experiments, I did not have one chance to shoot a lion during the day. But hardly had I set up traps when I caught seven male lions with thick manes in quick succession.

I had thus spent days and weeks when distant clouds indicated that the rainy season in the steppe had set in. All at once the large aggregation of animals around the brook and the neighboring pools dispersed. They knew that they would now find fresh, tender grass on the far stretches of the steppe, and everywhere pools of water which would make it possible for them to stray far away from the brook, at which they could drink only at the constant risk of their lives.

X

THE AFRICAN ELEPHANT

OUR knowledge of the ways and habits of the African giant of mammals is but meagre. We know that in the time of Scipio man had succeeded in pressing the African elephant into his service just as he still succeeds with the Indian elephant. For many centuries these thick-skinned animals were left to themselves, and, no doubt, ranged in immense numbers far and wide over the whole continent south of the Sahara. All this changed when the European settlers and merchants penetrated into the interior. Suddenly ivory became a much-desired article of trade. To be sure, great masses of ivory had been treasured by negro chiefs of the western coast. The demand, however, exceeded this supply, and soon the animals were hunted by natives and Europeans alike, and butchered in the most reckless manner for the sake of their valuable tusks. Formerly the natives had no special reasons to destroy these animals; but when ivory became a valuable article of exchange, and when the natives learned to use fire-arms, then the war of extermination began on a large scale.

BULL ELEPHANTS ON THE SIDE OF A HILL AT A DISTANCE OF THREE HUNDRED METRES

The commerce in ivory proved to what extent this war is being carried on. At Antwerp alone—not to mention other ports—the import of ivory from 1888 to 1902 amounted to six million five hundred thousand pounds. We have not yet discovered a desirable substitute for the ivory, and so the destruction of the elephant continues. If the governments do not soon combine in restricting this slaughter, the African elephant will ere long be counted among the extinct species of animals.

The Indian elephant is tolerably safe, compared with his African cousin, because the tusks of the Asiatic male elephant are small, and because the female has either no tusks at all or insignificantly small ones. The African elephant, on the contrary, has enormous tusks. Even female elephants carry tusks, each weighing from ten to thirty, or even forty pounds, while the average weight of the single tusk of the male is fifty pounds. The size and weight of tusks of exceptionally large animals are sometimes phenomenal. In 1898 an old male elephant was killed by native hunters not far from the Kilimanjaro, the tusks of which had a combined weight of four hundred and fifty pounds. These enormous teeth created quite a sensation when they were brought to market in Zanzibar. One of these tusks, the largest in existence, is at present in the British Museum in London, the other is in the United States of America.

Yet tusks of over one hundred pounds are pretty rare.

The weight does not always depend on the age and size of the animal. Not only do the different varieties of elephants differ as to the average weight of their tusks, but different members of the same family show dissimilarity in this respect. The South African elephant's tusks are considerably inferior in size and weight to those of the elephant in equatorial Africa.

Mr. Rowland Ward, in his book, *Records of Big Game*, gives the weights and measurements of the biggest tusks known to us. The African elephant exceeds the antediluvian mammoth as well as the Indian elephant; the biggest tusk is twenty-four and a quarter inches in circumference, ten and a half feet long, and two hundred and twenty-six pounds in weight.

Elephants usually live in herds. But solitary males are often met with; they are, for the most part, old animals with big bodies and enormously developed skulls. On this account, not because they are ferocious, it is more difficult to kill them than smaller animals. The most dangerous animals of a herd are the ones without tusks. It often takes fifty or more shots to kill a strong old male elephant.

The elephants use their tusks not only as weapons, but employ them largely in getting their food; as, for instance, in grubbing up edible roots, loosening the roots of trees which they cannot otherwise tear from the ground, and in barking trees. The bark of trees is not only food for the animal, but the chewing of the

bark will also allay its thirst. The cud is dropped on the ground. One may often trace the path of the elephant, as Robinson Crusoe did on his island, by these signs—barked trees and small heaps of chewed bark. The trail is also often marked by trodden-down and uprooted trees of goodly size. The development of the tusks is, no doubt, aided by the uses to which the elephant puts them in acquiring his food, and, in a minor degree, in maintaining discipline in the herd and in fighting rival males.

The paths of the elephants are easily followed in the rainy season, when they leave deep footprints in the soft ground. The holes made by the animals, which mostly tread in the footsteps of their leaders, are often astonishingly deep. Even during the dry season the clearly defined outlines of the elephants' soles are easily recognized in the dust. The marks left by the hind feet of the male are long and narrow, those of the female are roundish.

The East African elephant feeds, according to my observations, exclusively on the twigs, bark, and fruits of trees, but never on grass. He will also chew the stem of the Sansevieria plant. Such stems, chewed dry, may often be found in heaps over a wide area of the steppe, bleached white by the sun, and visible at a great distance. As this plant contains a great deal of sap, and grows plentifully in the most arid regions of the steppe, it is to the elephant a wonderful substitute for water.

The favorite haunts of the elephant in tropical East Africa are not, as one may think, the cool, shady, dense forests, but rather the mountainous districts with a scattered growth of trees. He frequents the wooded parts of the steppe chiefly during the rainy season; at other times he prefers to make his temporary home in high grass, in impenetrable thickets situated near lakes and rivers, and also on high plateaus. The natives—the Masai and the Wandorobbo—call these haunts *subugo*. They are commonly on ground of such elevation that they are assured of occasional rain-showers even in the dry season. From there the elephants stray far into the surrounding steppe during the rainy season.

The thickets where the elephant and also the rhinoceros love to dwell are not easily traversed by man. Progress is slow unless the hunter follows the paths which the animals themselves have made. When attacked by a ferocious or wounded elephant in these parts, he may have great difficulty in escaping.

The localities favored by elephants are, as we have seen, few and restricted. In parts of the country where they are regularly hunted—that is, almost everywhere—European travellers hardly ever catch sight of one. The animal is too wary to leave his hiding-place except at night. The former commandant of a station near the Kilimanjaro assured me himself that he had not seen a single elephant during his stay of seven years.

No doubt there are still a number of elephants in the

steppe around the Kilimanjaro and in the mountainous regions. Elephants have been known to climb mountains over ten thousand feet high, and to remain upon them for a considerable length of time. The professional hunters, who enjoy a monopoly, have reduced the number of these animals, which a few years ago amounted to many thousands, to a mere handful. According to my careful calculation, there are to-day not more than one thousand elephants in the area around the Kilimanjaro. These may be preserved if the governments of the colonies, the English and German in particular, agree to enforce a systematic protection of the animals. They must, above all, abolish the institution of the "ivory fines" which the natives can only pay by killing a certain number of animals. The government of Cape Colony has succeeded in preserving large herds of elephants in the Zitzikamma and Knysna forests. Why should this be impossible in German East Africa? The region of the Kilimanjaro is not fit for Europeans or even natives to live in, therefore it might be left to the elephants.

Before the settlement of South and East Africa, during the last half of the nineteenth century, the elephants ranged over every part of the country in surprising abundance. The early settlers and European hunters tell us of herds consisting of many hundreds of animals, which were soon to be slaughtered for the sake of their tusks.

THE AFRICAN ELEPHANT

To-day the elephant is almost extinct in South Africa. Besides a few specimens kept in preserves near Cape Town, only a few herds, in remote, unhealthy districts and in the protected forests, are left. To judge from the trustworthy report of natives, East Africa also was formerly alive with herds of the gigantic pachyderms. Not so many years ago large caravans used to start from the coast and penetrate into the Masai steppe in order to exchange many kinds of goods for precious ivory. A whole year, or longer, they would wander about in the land between the coast and Lake Victoria to trade with the Masai and the Wandorobbo, who, for a long time, were the chief elephant hunters in these parts. These two native tribes were soon joined by the Masai-El Morane, who also wanted to profit by the ivory trade. During the night the caravans protected themselves by thorn-fences against the rapacious natives, who were anxious to get as much as they could of the caravans' goods without making a return. The day was spent in bargaining for ivory. It often took days and weeks to obtain a few valuable teeth from the cunning natives, who knew how to drive a close bargain.

When these caravans had acquired as much ivory as they could transport, they returned to the coast to deliver the tusks to the Arab or Indian traders. These had fitted out the caravans and had advanced money and goods to the men; they therefore claimed and

obtained the lion's share of the profits of the enterprise. Many caravans successfully combined the ivory trade with the slave trade. On the shoulders of slaves, bought or captured natives, the precious teeth were often shipped to the market, in which the carriers, too, could be sold. This was surely the most simple and profitable solution of the question of transportation.

The treasures of ivory brought to the coast increased, and the number of the ivory - producing animals decreased phenomenally when rifles and ammunition became articles of trade with the natives of the interior districts.

It sounds strange, but it is true, that the innocent billiard-players of civilized countries are largely responsible for the almost total extinction of the African elephant. There is no material, from which the best quality of balls may be turned on the lathe, so soft and so elastic as the ivory tusk of the female elephant.

Conditions have changed; the hunting expeditions on a large scale are a thing of the past. There are still caravans of smaller size fitted out to carry on this trade in ivory, but they are obliged to penetrate far into the interior to accomplish their purpose. Some years ago I met such a caravan, about four hundred strong. They traversed and retraversed the comparatively unexplored country between Lake Rudolf and the Nile, which is still rich in ivory. This caravan was supplied with breech - loading rifles. They used

them with destructive effect, not only against the elephants, but also against other game on which they fed. These expeditions will soon cease, because the profits grow smaller and smaller.

The *tembo*, as the Waswahili call the elephant, has adapted himself to the changed conditions. He has grown exceedingly cautious and keeps out of the sight of man as much as possible, issuing forth from the protecting thickets only at night.

The elephants keep to the thickets and the remote mountain retreats during the dry season; during the rainy season, when food and water become plentiful, they roam over the open steppe. The herds move very quickly. It is, therefore, often very unsatisfactory and hopeless to follow even the fresh tracks of the animals, who may have gone ahead without stopping, to the next dense thicket or swamp, or into the mountains, or to some far-off place in the steppe. It is often impossible to make out the number of the animals, because they form a line to proceed more quickly, and each steps in the footprint of the one ahead. They often keep up their quick step for hours and hours, apparently without resting, so that it is almost fruitless to follow them.

One often meets elephants unexpectedly near hunting-camps and settlements, where they may have been for days or weeks. The intelligent animals realize that one does not naturally look for them there, but rather

away from human habitations. A Greek trader, living at a station in Moschi, told me that he once killed a huge male elephant almost within sight of the station. The natives had observed the animal for days, and reported his presence to the merchant. The officers of the station told me of similar experiences.

The reckless killing of these valuable animals should be stopped before it is too late. A good beginning has been made by Count Goetzen, the German governor of the Moschi district, who has issued ordinances forbidding in no equivocal terms the hunting and killing of elephants in this province.

The elephant is capable of developing extraordinary speed, as I have often had occasion to observe. The usual gait is neither a trot nor a gallop, but a kind of shuffle. This may be quickened into a shuffling trot. The animal moves on its path noiselessly, like the rhinoceros and hippopotamus; on the dry ground of the steppe, however, a trotting herd produces a thunder like rumbling noise.

The elephants are excellent mountain-climbers, and they, as well as the rhinoceroses, have left their traces in the softer kinds of stone on the very top of high mountains. Their paths often lead over steep mountain-saddles, and they frequently shorten their marches by sliding downhill in a sitting posture. Although they are bulky, they are at the same time agile and graceful, as any one may observe by visiting the circus, where

trained elephants, like gigantic athletes, perform all kinds of tricks from sliding down an inclined plane to standing on their heads.

The elephant, when he attacks his enemy, rushes forward with great speed, uttering piercing, trumpet-like sounds, his big ears standing out from his head. I have been told by reliable natives that elephants, on various occasions, turned on the hunters, threw them to the ground, and pierced them with their tusks. In one instance an old male elephant threw down a hunter, crushed his head with his forefoot, plunged his tusk into him, and slit him open as with a knife. The untimely and tragic death of the man whose body was found by Prince Ruspoli while hunting in Somaliland, was doubtless brought about in a similar manner. As a rule the elephant charges in a straight line. Therefore, it is safest to dodge to the right or left in order to escape the pursuing animal. The sense of smell is extremely acute in the elephant, as is also that of hearing, while the eyes are small and weak. The elephant, in most cases, scents his enemy before he hears or sees him.

If one has had the opportunity of observing elephants for weeks, then one can understand how a small number, at least, of the originally large herds have escaped their pursuers. I often had occasion to observe, from an elevated position, groups of these animals gathered in a valley below me. They raised their trunks high

up at the slightest stir of the air to smell the approach of a possible enemy, and to insure the safety of the herd.

There is also no doubt in my mind that the elephants, in consequence of these highly developed senses, have means of communication, especially by noises imperceptible to us. Or have they organs of sense-perception which we do not possess? Their sense of hearing is without doubt more acute than ours, their pendulous ears acting as large sound-receivers.

At one time I found two old males herding with a male giraffe. I observed the three animals together for over a week. They were apparently associated for their common security, the elephants combining their acute sense of smell with the giraffe's keen sense of sight. Elephants have been found together with zebras and gazelles by A. H. Newman, the English elephant hunter, but I think I can claim priority in observing elephants associated with a giraffe.

I am of the opinion that the elephants choose mountainous haunts with foresight. There the currents of air are not apt to be steady, as in the plains, but more or less fluctuating under the influence of the sun, and the animals are enabled to make good use of their superior organs of smell.

When the elephant has reason to feel safe and secure, he moves about carelessly, and utters now and then a trumpet-like sound from mere joy of living. Ordinarily,

he is very careful and shy, remaining all day in his hiding-place, leaving it only at night, not uttering the slightest sound except to warn the herd of danger. Certain noises made by the elephant, which often guide the hunter to the stand of the animal, are entirely involuntary. They accompany, as in other large herbivorous animals, the process of digestion. The capacious stomach of the elephant is long and narrow; filled with incredible quantities of food, this mighty laboratory cannot be expected to work noiselessly.

The elephant, no doubt, selects or shifts his stand frequently, with the view of avoiding his most persistent tormentor, the gadfly. Shady thickets and groves of trees offer the best protection.

I am told by natives that the elephant is able to detect the paths of human beings by smelling the ground. I myself have seen a herd increase their speed when they passed a path on which I had travelled two days before.

It is a well-known fact that elephants profit by experiences, particularly bad ones. Nothing, for instance, can induce a tamed elephant to step on a wooden platform which has once given way under him. In the state of freedom an elephant shuns a neighborhood where he once has had an experience with pitfalls.

It has been observed that in the Masai plateaus several herds congregate together towards the month of October, each herd, however, retaining its identity.

At this time, also, herds consisting only of middle-aged males join other herds; at other times the sexes are strictly separated within the larger groups. The distinctions of sex, of age, and also those of a social nature are presumably not so carefully guarded now as formerly.

Very old males are mostly found separated from the herds, wandering about alone or in pairs. The propagation of the species is left to the middle-aged male animals.

The young elephant, the mother of which has been killed, is invariably adopted and suckled by other females, which proves the strong family feeling prevailing within a herd.

The young ones are suckled for about two years; the period of gestation is also nearly two years, and a single young one is produced at a birth. The females are able to bear young ones when about fifteen years old, while the males enter the state of puberty somewhat earlier. The elephants are full-grown at twenty-five, and often attain a good old age.

Although the elephants are not plagued very much by ticks, they yet seem to delight in rolling about in the mud, in throwing dust or earth over their backs with their trunks, and in rubbing their skin against trees. In forests composed of larger trees, one may notice hundreds the bark of which is rubbed off at a certain height. On July 23, 1903, I found on trees in

the forests of the western Kilimanjaro such marks fifteen feet from the ground.

The natives of German East Africa, for many decades, have been hunting the elephant for the sake of the ivory, either on their own account or in the pay of enterprising native or foreign traders. They still use muzzle-loaders. They follow the elephants into the thickets, in groups of three or more, and often pursue the wounded animals for days. Every hunter marks the bullets he uses, so that there may be no doubt who has fired the fatal shot. These hordes of native hunters are very superstitious. They wear charms about their bodies, and, confiding in their magic power, approach the animals fearlessly. They take more chances than any white hunter would care to assume.

Unless the colonial governments step in in time, these black hunters will, in the long run, clear East Africa of elephants and other big game as effectually as the natives of South Africa, armed with muskets, have done in their part of the "Dark Continent" since the middle of the nineteenth century. Let us, however, hope that measures will generally be taken, such as have been adopted by Count Goetzen, to preserve the remnants of big game, such as the elephant, giraffe, rhinoceros, and hippopotamus.

The Wandorobbo and Wakamba still hunt the elephant in the old-fashioned way—namely, with poisoned arrows. They follow the wounded animals for days and

days, and rarely lose one. Vultures and marabous act as unfailing guides. Some Wandorobbo tribes use also poisoned spears on their dangerous hunt.

There seems to be no reason why the African elephant may not be tamed and educated as well as the Asiatic species. This might be done by Indian trainers.

The African natives, who frequently capture calves, do not rear them, because they would be of no use to them. Besides, only the cattle-raising tribes could keep them alive until they were able to quit a milk diet. Moreover, the climatic and topographical conditions are so different in Africa from those in India that it is an open question whether it would pay to press this giant animal into the service of man in the "Dark Continent."

How the fauna of Africa has changed within comparatively recent years! Fifty years ago the countries now comprised in German Southwest Africa were teeming with herds of elephants and rhinoceroses. W. Cotton-Oswell wrote in those days: "Vardon was the most enthusiastic rhinoceros hunter; he filled his wagon with rhinoceros horns, as I did mine with ivory; he used to shoot four or five every day, and there was always a freshness about the sport to him which seemed remarkable. He was an all-round shot, but best at rhinoceros. . . ."

This was in the good old time when men like Oswell decimated the enormous herds of South Africa, and

when the Boers on their northward advance into the veldt slaughtered all kinds of game—the time of which he only has an idea who, like myself, has been privileged to hunt in countries with a virgin fauna.

The process of extermination, so successfully carried out in the south, is merrily progressing in equatorial Africa, especially in the western parts; for, not so long ago, the governor of German Kamerun granted the black elephant hunters permission to use breech-loaders. We may retard the complete extinction of the biggest of mammals; we will hardly be able to prevent it.

The day is not far off, I am afraid, when to the question, "Quid novi ex Africa?" the answer must be given, "They have killed the last of the African elephants."

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XI

HUNTING THE ELEPHANT

I HAD been unsuccessfully trying for months to take satisfactory long-distance pictures of elephants and to capture a young one alive. At last my patience was amply rewarded one morning in September. A number of elephants—most likely to escape the poisoned arrows of the Wakamba—came down from the mountainous region and paid a visit to my camp near the brook. They had crossed and recrossed the brook repeatedly, and had approached within a thousand feet of the camp. I followed in their track, to study their ways, and found that they had not, as I supposed they would, taken the direction towards the mountains, but had turned their steps, in single file, into the steppe. I returned to the camp, prepared myself for a long march, and started in pursuit, taking with me my best-armed men and about forty carriers. The herd numbered twenty or more, to judge from the traces. Some young ones were among them, a number of strong females, and also a few bulls; the latter I could easily make out by the long and narrow impressions made by their

hind feet. I was very eager to capture a young animal, though this would be especially difficult on the open steppe and considering the size of the herd.

Before us lay a march of many hours; we could not venture in the dry season too far from our camp, since

PROFESSIONAL ELEPHANT HUNTERS

our water supply was limited to what we carried with us. The herd had gained considerable headway, walking with a quick shuffle, apparently without stopping. Heaps of Sansevieria plants and bark of trees, taken and chewed dry while they walked on, littered their path. We followed it, stepping lively, my best men forming the rear guard so as to keep the long column

moving. Tramp, tramp, tramp, we went along silently, in the well-beaten track on the hot, dry ground in the glow of the mid-day sun. Hour after hour passed and our strength was wellnigh exhausted.

Suddenly we see an object near a group of trees. My field-glass tells me it is a solitary male giraffe, which passes out of sight as soon as he has scented us. Now we are crossing the deep, dried-out bed of a periodic river. Heading the line, I arrive first on top of the high embankment on the opposite shore. About two hundred feet in front of me I notice a dark mass near a high Salvadora bush. I let myself down on my right knee; my men follow my example *a tempo*. A number of black birds fly up from the dark mass. The mass rises; it is a rhinoceros, and near it a second, a young one, emerges from the grass. My carriers pass me quickly the photographic apparatus, always kept in readiness. The snap-shot with the camera is followed by a shot from my rifle. The wounded mother rhinoceros rages about in a circle, snorting and puffing like an engine, looking for the enemy. A second shot settles her, and my blacks swarm out to surround and capture the young one. This one proves to be rather big and dangerous. Without delay it goes for my blacks, who also without delay scatter in all directions. The young animal then turns and makes its escape, raising its tail straight up.

I did not care to kill the animal, but I would have

given a great deal had I had a horse. Horses are unfortunately not available in the African steppe. Leaving three men behind to secure the well-developed horns of the old animal and to bring them to camp, I continued the interrupted hunt of the elephants. At four o'clock in the afternoon I became convinced that it was quite hopeless to follow the quickly moving animals, who, no doubt, were bound for the nearest drinking-place. We therefore rested. My men were discouraged and pining for the comforts of the camp. I decided, however, to make one more attempt to reach the elephants. The blacks, who were somewhat rested, responded cheerfully, and again we tramped over the steppe. At last my main guide and I noticed in the far distance, over a mile and a half away, on the hilly ground before us, two dark masses of elephants. In the clear atmosphere of the tropics the distant animals appeared remarkably near and distinct.

I left most of my party behind, and approached the animals as fast as I could, taking with me but five men. The steppe was almost bare; here and there only small groves of locust-trees relieved the monotony of the landscape. Yet we managed to creep up to the herd within six hundred feet, and I succeeded in taking a few snap-shots. Through my field-glass I saw that the herd was separated, according to sex, into two parts. Three young ones were with their mothers. They all

stood there absolutely still except for the flapping of their long ears. It was an impressive and at the same time an uncanny sight.

Notwithstanding the distance, I fired at the nearest male elephant, the mightiest bull of them all. The wounded animal raised his trunk high up, spread out his ears like two gigantic fans, and made a few steps towards us. The whole herd now scattered to look for the hidden foe. I was kneeling, while my men lay flat on their faces. I sent two more bullets into the male elephant. The whole herd then gathered around an old female elephant, and broke away in a quick shuffle. Since they turned to the right, I enjoyed the grand sight of twenty-four elephants passing at a distance of about four hundred and fifty feet. The wounded male passed a little nearer to me, and I could not refrain from firing at him once more. The whole herd stopped, took the young ones into their midst, looked around, and sniffed the air. They discovered us, and, led by two females, they came to attack us.

The situation became very critical; for in the long-run the animals were bound to overtake us. I fled as fast as my feet would carry me in the wake of my men, who were running away from the animals at a right angle. They knew, as I did, that the elephants' sense of sight is weak, and that our only chance of escape lay in changing, from time to time, the direction of our flight. We did not dare look around, but hurried on

in breathless haste. The thundering, dull noise of the pursuing elephants came nearer and nearer. Then, suddenly, a piercing, trumpet-like sound was heard above the dull noise.

Turning around, I saw the wounded animal falling into a sitting posture and the rest of the herd in wild flight away from us. My men retraced their steps and joined me, picking up part of the things which they had dropped to facilitate their escape. A bullet just reached the last of the female elephants; I hoped to delay her flight and to capture her young one. Then I turned my attention to the sitting bull, who was apparently mortally wounded. Before he succumbed to the effect of my bullets, I took a few snap-shots at him with my camera.

I sent for the men whom I had left behind when I started, with only five companions, on my pursuit of the animals, told them to skin the head of the dead elephant, and to loosen the tusks, and then, taking with me six men and the whole supply of water, but forgetting the ropes, I followed again the retreating herd.

After about two hours we found the animals, separated according to sex, in two groups, standing under some locust-trees. My men, carrying my reserve rifles and photographic apparatus, followed me up to about four hundred feet from the herd. Two cow elephants, with their young, stood a little aside from the rest, one

HIS LAST CHARGE

of them wounded by me previously. Lying flat on the ground, I took good aim and hit both. They flapped their big ears and, accompanied by the two young ones, fled to the right; the rest of the herd, with the third young animal, ran off to the left. The wounded cow soon disappeared from my sight into a depression in the ground. After the herd had vanished in the distance, we followed the two cows and the two young ones. One cow was badly wounded and lagged behind. It took twenty-one shots to kill her, the last and fatal one lodging behind the ear. The leading cow fell shortly after. The young elephants, both bulls, about five feet high, stood still by the dead cow. We rushed up to them, but one showed fight and attacked my men vigorously, throwing one of them to the ground and attempting to pierce him with his small tusks. I had to kill him to save my man. Then I threw myself upon the second young bull. Taking hold of his ear with my left hand, my right hand resting on his neck, I brought my full weight, one hundred and eighty pounds, to bear on him. I cried to my men to tie his hind legs. Alas! the ropes had been forgotten. Some of my men hung onto his tail, the rest tried to use part of their clothing as a substitute for ropes. Our efforts were futile. I was very lucky not to have lost my life in the tussle. We were completely played out, and gave up the struggle, when the young elephant tried to turn the tables on us by attacking us. My men avoided him

cleverly. I was glad when he stopped his assault and fled in the direction the herd had taken; this relieved me of the necessity of shooting him. As we were tired to death, we did not go back to our men, but stayed where we were, lit a fire, and prepared to spend the night on the open steppe. But tormenting thirst prevented us from falling asleep. We went back to the nearest dead elephant, opened his stomach, and drank of the nauseating fluid we found. Then we lay down once more to sleep. About nine o'clock one of my blacks alarmed us with the subdued cry: "Tembo Bwana! Tembo!"

And, indeed, not farther than five hundred feet from us the remaining twenty-one elephants passed by in the direction of the mountains from which they had come, resembling, in the moonlight, a herd of phantoms.

The night passed without further excitement. I had taken my turn as guard in the early hours. Towards morning I was startled from deep slumber by a strange noise. Looking about me, I saw that the fire had burned low, and that all my men, the guard included, were sound asleep. It was the snoring of the guard which had awakened me.

We started early in the morning on our homeward march, and reached our camp after a tramp of ten hours over the dry steppe in the glowing heat of the tropical sun. I doubt whether we ever would have survived that day had we not found some water in the bed of

a periodic stream. Words are powerless to express our strange and varied emotions in the situation I have just described. At last we reached the camp.

The next day I sent out some of my most trusted men to bring in the tusks of the two dead elephants. The larger of the cows had but one tusk, weighing twenty-eight pounds. My men discovered two iron bullets lodged in the animal, one in the outer coating of the stomach. These bullets had been sent into the elephant by professional black hunters.

I felt keenly disappointed because I had not succeeded in capturing alive one of the young elephants. The thought that I had companions in misery did not console me very much. No one had yet succeeded in bringing a live elephant from East Africa to Europe, in spite of the fact that the Uganda railroad has opened the way into the very heart of the countries around the Upper Nile.

Up to the present day one young elephant only has been brought from German Africa to the fatherland. It was captured in West Africa, in Kamerun, by native hunters and sent to Germany by Mr. Dominis, a lieutenant of the colonial troops.

If only I had had the good-luck to take a picture of the twenty-five elephants! I would have given—I still would be willing to give—one of my fingers in exchange for a lucky snap-shot.

In December, 1900, I had a similar experience. For

eight days I had searched the steppe for elephants, when at last I fell in with a small herd of seven animals. I killed one of the cows and captured her young one. While I threw myself in its way, my Wandorobbos fastened a leather strap to one of its hind legs. The animal was successfully brought to the camp, but died after a few days, because we had no milk with which to feed it. The young bull and I had become such fast friends that he used to caress my beard and face with his trunk.

In November, 1903, I had another adventure with elephants. It was an unexpected and unsought-for surprise. As usual I headed my caravan, which was marching from one mountain to another in search of the nearest drinking-place. On the march I killed two antelopes. While my men were busy with the animals, I proceeded a few hundred steps, accompanied by a single rifle-carrier, and sat down on a rock. My thoughts turned towards home, and I was humming one of our beautiful folk-songs, when I was suddenly aroused by a noise behind me. I looked around and saw, only about ninety feet away, a big male elephant coming towards us. I grasped my rifle, but remembered that it was loaded with a lead-pointed cartridge, which was utterly ineffective against an elephant. Besides, it was too late to shoot. No doubt we would have been trampled to death by the animal had it not been as much scared by seeing us as we were by seeing him. The elephant uttered a piercing sound, flapped his big ears,

and turned to the left. I quickly loaded my rifle with a more appropriate cartridge and followed him in his hasty retreat. I fired two shots and wounded him so that he slackened his pace. He halted under some locust-trees, made an attempt to attack me, but was killed by two more shots. This bull had apparently strayed away from a small herd which had—an unusual act for the time of the year—come down from the higher plateau to the dry steppe, part of which, however, was covered by green grass in consequence of a recent rainstorm.

At another time I had, for weeks, been looking for elephants on the northeast side of the Ngaptuk mountain. I had purposely refrained from shooting game or birds so as not to scare away the elephants, which might be concealed in some of the numerous ravines and glens of the mountains. One day I could not resist the temptation and shot a rare thrush. The report of my gun echoed and re-echoed from mountain and dale, and was answered in the deep valley below me by the warning trumpet sound of an elephant. The next day I went in the direction from which the sound had come, and was fortunate enough to locate the herd. The wind was favorable and I managed to approach within a few paces of two bulls. They stood perfectly still, and I waited almost an hour for the animals to change their position. I killed one, hitting him between ear and eye, and the other by two shots aimed

at his heart. Patience is as great a virtue in hunting elephants as quick decision. There are only two shots which unfailingly tell, one aimed at the spot between the eye and the ear, the other aimed at the heart, both from the side. From the front the brain can only be reached by a shot which strikes the part of the head where the trunk begins. A shot aimed higher will not hurt the animal, but may have fatal results for the hunter. Of course there are other shots which may tell, if they are fired from a large-caliber rifle and at close range; for instance, if one hits a bone in the leg.

Luck is as essential a factor as skill in shooting the pachyderm giants. A shot may hit a vital spot and not kill the animal instantly, but give time for him to take revenge on his foe. I had many a narrow escape, and many hunters have paid the death penalty for their daring in hunting the "tembo." There is no counting on what the African elephant may do. The hunter has to be constantly on his guard, and must be quick-witted.

I shall never forget an experience I once had with two male elephants. For many days I had observed, from the top of a hill, a herd of elephants. I proposed to take a number of good pictures of the animals, and was waiting for the clouds to scatter. At last the clouds broke and the sun came out. I took some excellent distance-pictures, and felt at liberty to gratify my suppressed desire to have a shot at the two enor-

mous male elephants which had attracted my attention. I left the hill, accompanied by a few of my men, to make my way through the thick entanglement of high grass and plants, in the direction of the distant herd in the lower swampy ground. We followed for

BULL ELEPHANTS AND BULL GIRAFFE—DISTANCE FOUR HUNDRED METRES

three-quarters of an hour a narrow path trodden by rhinoceroses, and then we had to cross a number of ravines. When we reached the place where I had last seen the animals, they had left and were moving uphill through a forest of high bushes and trees. The two bulls made up the rear. The animals soon disap-

peared from our sight, but we followed their tracks closely. Suddenly one of the bulls stood not far from us in the shade of some fallen trees. Although he was not farther than one hundred and fifty feet away, the high grass and the entangling plants prevented me from shooting at him. The animal, no doubt, scented us; it soon disappeared to our left. Excited, and anxious not to lose this good chance, I followed him with two rifle-bearers. A deep ravine intervened. We traversed it as quickly as possible. There, close to us, we heard a rustling noise. "Tembo, Bwana!" (sir, the elephant), whispered one of my men. "Hapana! Nyama mdogo" (no, only small game), I replied. The same moment the bushes parted, the slender trunks of the trees bent right and left, we were pressed to the ground by the bent and broken bushes and trees, and past us, almost touching us with his heavy foot, rushed the animal without, fortunately, taking any further notice of us. Such moments the hunter never forgets. No one living peacefully within the pale of civilization has the faintest conception, not even by the greatest stretch of imagination, how helpless a man feels in the heart of the grand and terrifying wilderness and at the mercy of an animal like the elephant. Often, when looking at an elephant in our zoological gardens, a cold chill creeps over me as I recall those moments of awful suspense, my unsophisticated neighbors meanwhile cracking jokes at the expense of the captive giant

from whom they would run away in terror should they meet him in the wilderness.

Two days later the two bulls were back in their favorite stand, where they spent the night. At sunrise they left the low land and moved again up towards the mountain forests. The wind being favorable, I determined to try my luck again. With some natives I took my European taxidermist, Mr. Orgeich, with me, hoping to kill at least one of the bulls and to prepare the whole skin on the spot. We followed, hot and dripping with perspiration, the tracks of the animals through the dense thicket. After an hour we saw them at the swampy bottom of a deep ravine. The wind shifted and they became aware of our presence. We saw them disappear in the high plants on the opposite edge of the ravine. Should I allow the animals to escape with their precious load of ivory? Their tusks must have weighed about two hundred and fifty pounds each. We crossed the swampy ravine, but the bulls had too great a start. Yet we plunged into the thick undergrowth of the forest and struggled along for hours, but in vain. I finally gave up the pursuit, tired to death and faint at heart with disappointment. I presented a strange spectacle; my hands and face were torn by the bushes and my skin and scanty clothing were covered with a layer of mud. I could not help smiling at myself and thinking of the time, many years ago, when I looked equally dirty, but red

instead of black, when riding in a steeple-chase on the soft turf in Westphalia, I was thrown only a few yards from the line.

On one of the many disappointing hunting expeditions I suffered, in addition, the loss of one of my best blacks. During the dry season I was following a herd of elephants over an arid part of the steppe accompanied by a small number of carriers. They carried only eight pounds each — ropes, axes, etc. — but the heat proved too great and our water supply soon gave out. At four o'clock in the afternoon I decided to return to the camp. Two of my men were so completely worn out, and so apathetic, that I had to drive them before me. One of them refused to go on, and we had to leave him behind on the steppe. Late at night we reached our camp, which was pitched near a drinking-place. The next morning some of my men set out to assist the unfortunate native whom we had been forced to leave to his fate; and his fate had been terrible, indeed. He had dropped on a path frequented by rhinoceroses, and had been killed by these animals. Lions passing the spot had almost completely devoured him.

Hunting the African elephant is very dangerous, especially when done in a sportsman-like manner. It is comparatively safe to hunt it with the assistance of experienced Askaris. Some of these "assisted" hunters have the courage to have their picture taken

surrounded by their trophies, among them young elephants and females.

The professional black hunters are very superstitious. They believe that they will, sooner or later, meet an untimely end if they continue hunting after they have killed fifteen elephants. Many of them, therefore, prefer concocting "elephant-dana," a medicine that acts like a charm, and having others risk their lives in their service. No doubt they act very wisely.

XII

THE RHINOCEROS

NO doubt elephants were as numerous in the Masai-Nyika, before they were hunted for their ivory, as rhinoceroses are still. These were comparatively little hunted, because the value of their horns and the danger and difficulties of hunting the animals were rather disproportionate. Now that elephants have grown scarce, the turn of the rhinoceros seems to have come. Their numbers have been wofully diminished within the last few years. During the time which I have spent in East Africa, I have seen about six hundred rhinoceroses, and have noticed the tracks of thousands. Away from the roads taken by caravans one may meet daily with a number of these animals; in the mountainous parts of the great Masai steppe, six thousand feet high or more, they are to be found in multitudes during the dry season. It is interesting to read about the good "bags" which some travellers and explorers managed to make.

Count Telekis and Mr. von Hoehnel killed ninety-nine rhinoceroses on their expedition which led to

MALE AND FEMALE RHINOCEROSES BATHING

the discovery of Rudolf Lake and Stephanie Lake. The flesh of the animals furnished excellent food for the natives of the caravan. Dr. Kolb is said to have killed over one hundred and fifty rhinoceroses, until he, in his turn, was killed by a wounded "pharu." His companion, Mr. von Bartineller, shot over one hundred and forty "pharus." The first commandant of the German fort Moschi, near the Kilimanjaro, Mr. von Eltz, has over sixty rhinoceroses to his credit. English hunters have been equally successful. These numbers prove not only the fact that these animals are still very abundant in these parts, but they also show that the rhinoceros is hunted more extensively now than formerly and that he, too, is destined to disappear unless preserved in some systematic manner by the concerted action of the colonial governments.

Hunting the rhinoceros—by one hunter alone and in a sportsman-like manner—is a most dangerous undertaking. It is an idle question to ask which animal is most difficult to hunt—lion, leopard, buffalo, elephant, or rhinoceros? It all depends on circumstances, on time and place. There is no doubt that you take your life in your hand every time you hunt a rhinoceros. I have often read of hunters simply jumping aside coolly when attacked by an animal, and then laying it low with a well-aimed shot. My own experience has taught me that it is foolish to talk this way. If a rhinoceros actually does charge its enemy, it is the most deter-

MALE AND FEMALE RHINOCEROSES BATHING—SIDE VIEW

mined of animals, and will not rest until it has impaled its foe. It often happens that a rhinoceros rushes towards a hunter merely to escape, not noticing the enemy at all, for the eyesight of the animal is very poor. When the animal really attacks, then the hunter is doomed, unless he succeeds in killing it or in climbing a tree or an ant-hill or a big rock.

The only true way, worthy of a sportsman, to hunt the rhinoceros is to do so "unassisted." Reckless killing should under no condition be indulged in. It often happens that a rhinoceros charges and reaches its pursuer. I once took care, for a few days, of a Sudanese Askari who had been run through by the horn of a rhinoceros, and had been repeatedly tossed high up in the air by the infuriated, wounded animal. He had been taken to my camp by an English government physician, to whose caravan he belonged. The wound was horrible to look at, and the condition of the patient appeared perfectly hopeless. Yet he lived through the night. The next day, towards evening, his pain became excruciating, and his moaning and groaning were heart-rending. He begged to be relieved, and I gave him all the opium I had, almost wishing that it might prove an overdose. But the black fellow tenaciously clung to life. After twenty-four hours he was still alive. To counteract the effects of the opium, I made him swallow a bottle of salad-oil. The day after he was transported to the nearest English station. The

last I heard of him was that he had entirely recovered.

The victim is not always so fortunate. The rhinoceros, after having tossed him up in the air and left him lying on the ground, often returns to renew the attack. I had many narrow escapes, and often came within an inch of losing my life, yet always got off safely, although sometimes with a bad scare. My first meeting with the "e'munj" of the Masai occurred towards evening on the steppe. A patch of thorn-bushes had been set on fire during the day, and the ground was black with their ashes. Never shall I forget the impression made upon me by the dark form of the bulky animal standing on the black ground in the light of the setting sun. With head erect — for it had scented our approach—it stood there as if planted in the earth. I was only partially covered by a half-burned bush, and my hand was far from steady when I fired my large-caliber rifle at the rhinoceros, which was only three hundred feet away. The "pharu" answered the shot by a quick charge. I heard the grunting and snorting of the animal close in front of me. Mechanically, I fired a second shot, and the large beast turned, fortunately for me, and ran away, puffing and panting, to the left. I was completely nonplussed. That the clumsy and slow animal of our zoölogical gardens could develop such extraordinary agility and speed was a revelation to me; everything was so different from what I had expected it to be.

My second encounter still further enlightened me as to the nature of this massive and, except the elephant, most powerful of the terrestrial mammals. Our caravan was progressing slowly, and I was riding ahead on an ass—one of the few the tsetse-fly had not yet killed—over the steppe, armed with a shotgun. Seeing a flock of guinea-hens alighting in the distance, I dismounted and worked my way through the high grass in the direction of the birds, when an uncouth, bulky animal suddenly rose before me out of the grass. I had enough presence of mind left to throw myself flat on the ground. The animal came on in a rush, passed me at a foot's length, broke through our caravan, and disappeared from sight wrapped in a thick cloud of dust trailing behind it. I now fully realized that I had had what the English call "a narrow escape," and made up my mind to be more cautious in future regarding this inscrutable animal, which is apparently subject to sudden panics, in which it is as likely to rush headlong towards the hunter as away from him.

On the same day I had an opportunity of seeing four rhinoceroses, among them a female with a young one. Shortly afterwards we crossed a well-trodden rhinoceros path which led to a drinking-place among rocks, and I determined to lie in wait for the animals. The rhinoceros is nocturnal in its habits, eating and drinking during the night and spending the day in sleep.

On the high plateaus of the steppe the nights are

apt to become bitterly cold. I set out accompanied by a few men carrying woollen blankets, lanterns, etc., to watch for prey on the edge of a ravine. I had forgotten to take into account the short duration of the twilight in the tropics. The night surprised us before we had reached the ravine, and the moon would not rise before nine o'clock. I thought it best to stay where we were. The ground was strewn with rocks and covered with thorny bushes and high grass. I noticed a few locust-trees by their whitish bark. While we were waiting for the moon to rise we heard, suddenly, a sound like a short grunt. My men dropped everything and ran for the trees. Only my rifle-carrier tarried a moment, whispering to me, "Pharu Bwana!" and then he, too, climbed the nearest tree. I must admit that my hair stood on end when I distinguished in the light of the rising moon the massive form of a rhinoceros close in front of me. The situation was anything but inviting, every step checked by huge stones, thorny bushes, and high grass, and not far away the steep ravine. My eight carriers were perched on the trees out of the animal's reach, and of no assistance to me. I had a large-caliber, double-barrelled rifle with me, such as is used in hunting the elephant. I took aim as well as I could and pulled the right trigger. The rebound of the rifle forced me back a step and made me sink on my knees. With my finger on the left trigger I awaited the rush of the animal. But, snorting and stumbling, it

disappeared into the ravine. I did not dare move until he was out of hearing distance. Then we started on our way back towards the camp, my men singing to allay their fear and to scare away any animal that might be concealed. The animal which I had wounded, a strong bull, was found dead in the ravine next day.

As a rule the rhinoceros does not attack a man, but tries to escape, although the animal has been known to charge without any provocation. It is, however, at all times advisable not to take any chances and to be prepared for the worst.

I had many opportunities of observing the rhinoceros and its habits, particularly on the high plateaus of the watershed between the Masai district and the Victoria-Nyanza—solitary animals as well as parties of three or more, both in the primeval mountain forests and on the open plains. In time I had become so well acquainted with the habits of the rhinoceros that the danger of hunting it became greatly diminished.

I know no better way to give the reader a faithful picture of the ways and habits of the rhinoceros than by relating to him a few of my many experiences and adventures with this big animal.

One day I was hunting game in English East Africa not far from Kibwezi. I had killed a Grant gazelle buck with one extraordinarily large horn, when I saw, about seven hundred feet to my left, a strangely shaped, dark object. It appeared to be the uprooted trunk of a dead

tree. When I looked again it had disappeared. Using my field-glass, I realized that the dark object was a rhinoceros which I had first seen in a sitting posture, and which now had stretched itself out on the ground. I carefully stole up to within fifty feet of the animal, against the wind, and fired from behind a small thorn-bush, aiming at the ear. The startled bull made a sudden dash in my direction, but turned about before reaching me. Hit by a second bullet, he went down like a hare in a cross-fire.

A few years later I wounded an unusually large, old bull. He first fled, but came back towards me, describing a wide curve—tactics often employed by these animals. Although I hit him several times, he collapsed only thirty feet from me. The bull had been in the company of a cow. When I fired the first shot the animals butted their heads against each other, the bull, no doubt, thinking that his mate had hurt him.

I had another unexpected encounter with a rhinoceros when I was hunting the koodoo, not far from Jipe Lake. The animal, which suddenly appeared not farther than twenty-five paces from me, was plastered all over with mud and reddish dust. It had, no doubt, taken a bath in a muddy pool and rolled around on the dusty ground. A strange apparition in the light of the setting sun! I felt instinctively that the rhinoceros meant to charge me. It moved its heavy head to and fro three times to scent my whereabouts, and started

on a mad rush in my direction. In this critical moment my rifle went off accidentally; the bullet, however, hit the animal's head, though somewhat high. The rhinoceros almost touched me as it passed. I ran under cover into a thick thorn-bush. The animal chased one of my men—I was accompanied by ten natives—twice around the gabled trunk of a big locust-tree, and then disappeared in the thorny thicket. I did not dare fire another shot at the animal, fearing that I might wound one of my men hiding in bushes and behind trees. A fever which laid me up for two days prevented my following up the animal.

It is essential in hunting the rhinoceros to observe carefully the direction of the wind. This is best done by lighting a match or dropping fine sand to the ground or holding up a wet finger. The animal depends mainly on its keen scent to warn him of the approach of an enemy. The rhinoceros, also, is almost invariably attended by the so-called rhinoceros-birds (*Buphaga*), which clean it from parasites, like ticks, and act as guards to warn it of danger by their shrill twitter. The lying animal will rise at this alarm signal and either flee or lie down again after a while. In the latter case the birds again alight on their host and again warn him when the hunter makes another attempt to approach his prey. This is another case of two animals combining for protection, their senses supplementing each other. Of all the rhinoceroses which I succeeded

in killing only one was without "dundos," sore spots of the size of a quarter or even a dollar. The natives believe that these sores are caused by the rhinoceros-birds. In spite of the almost constant activity of these birds, which are frequently joined by ravens, the *Rhinoceros bicornis* is never found free from parasites, in particular, ticks of all kinds, some of which, like the *dermacentor Rhinocerotis*, depend entirely on the rhinoceros for their sustenance.

I have never seen more than four "pharus" forming a party, though I did see often as many as eight animals at the same time, but not together.

The rhinoceros has a phenomenal memory for places. Every night during the dry season they cover enormous distances on their way to the drinking-places. They have the curious habit of always depositing their excrement at the same place, scattering it with their hind legs. These manure-patches, no doubt, serve the animals as guide-posts, and also enable the hunter to identify the animals by the composition of the excrement. Their food consists entirely of the leaves, twigs, and sometimes the roots of certain bushes and shrubs, never of grass.

The horns vary considerably both in shape and size. The horns of the cows grow much longer and are, as a rule, more compressed — often swordlike — than the horns of bulls, which are shorter and conical. The common, also called the black, rhinoceros has, as a rule,

two horns, but there have been found animals with as many as five. The horns are often cast and then renewed, except in very old animals. The biggest horns recorded by Rowland Ward measured fifty-three and a

THE SPECIMEN NOW IN THE COLONIAL MUSEUM, BERLIN

half inches and sixty-two and a half inches. The former belonged to a "common," or "black," East African rhinoceros (*Rhinoceros bicornis*), the latter to a "white" South African animal (*Rhinoceros simus*). I bought a horn in Zanzibar fifty-four inches long. The longest horn of a rhinoceros shot by me measured from twenty-four to thirty-four inches.

THE RHINOCEROS

The black rhinoceros, the biggest terrestrial mammal next to the elephant, formerly abundant all over the eastern and south-central parts of the "Dark Continent" has now become comparatively rare and restricted. Fifty years ago the English hunter, Anderson, killed over sixty of these animals in the valleys of the Orange and Zambesi rivers in the course of a few months.

The rhinoceros is most dangerous in the bush thickets which cover extended districts of the lower steppe, in the thick growth of entangling plants which cover large tracts of the high plateaus, and in the clearings of the big mountain forests. Favorite haunts of the horned animal are the small mountain meadows, often six thousand feet above the sea, the brush and grass of which afford the animal splendid cover. These thickets are almost inaccessible to man, and nearly impenetrable. They are formed largely by jasmine, smilax, pterololium, Toddalia, blackberry, and other shrubs and bushes. The frequent rain-showers in these high mountain regions furnish the rhinoceros with food and water, even during the height of the dry season. They withdraw thither in large numbers when water becomes scarce in the lower country. It is exceedingly hard to hunt the rhinoceros in its mountain haunts, for they easily scent or hear the approaching hunter when he works his way through the crackling bushes. They will rise with a great deal of noise and stumble down the mountain slopes, or they will sneak off as

quietly as possible, and change their resting-places, which look like big bowls sunk into the ground. If we approach them with a favorable wind, "up wind," then we may meet with great surprises and encounters, which may prove fatal, especially if we chance to suddenly come upon several animals. Even the Wandorobbos and Wakamba do not like to hunt the rhinoceros in these "buenretiros." I must confess that I, too, am not eager to repeat the experiences I had in that mountain wilderness. The very thought of many narrow escapes I had makes my flesh creep. Sportsman-like hunting, which consists in doing one's own shooting and in sparing the females and the young ones, is out of place there, because it would be simply suicidal. Any hunter there is very glad to be "assisted" by natives, and does not hesitate to shoot down, indiscriminately, young and old animals, males and females, in mere self-defence. Common shooting, however, without some prearranged method, is as dangerous as hunting alone. The far-off mountains of East Africa will furnish a fairly safe retreat to the rhinoceros for many years to come. It is to be hoped that the colonial governments of England and Germany will prevent the European trader, driven by the "commercial spirit" of our age, from organizing hunting expeditions.

Hunting the rhinoceros is dangerous enough in itself, and it brought me many times into "close touch," and almost contact, with the animal; but to try, in addition,

FEMALE WHITE RHINOCEROS WITH CALF

to take pictures of the animal in its haunts, in the daytime and at night, demands not only courage, but also infinite patience. The animal is nocturnal in its habits, and goes about in daytime only when the sky is clouded. But then it is useless to try to take a picture. One must patiently wait until the sun penetrates the clouds, if but for a moment, and until the light strikes the animal at a certain angle. The distance, also, must not be too great. All these conditions must be fulfilled to assure success. The photographer must have a steady hand, or the picture will be spoiled. In addition to steady nerves he must have "nerve" to brave danger and to meet sudden death, if such be his fate. Personally, I do not know of any greater risk than to photograph and to hunt the wild beasts at the same time. Just as difficult and hazardous is the taking of pictures at night-time. But when all difficulties and obstacles have been conquered, and when the development of the plate reveals the success of this magic art, then one feels repaid for all the hardships and previous disappointments. Every time I showed my natives any of the pictures, they shook their heads in wonder and looked up to me as to a magician who had succeeded in fixing on a tiny glass plate the scene they themselves had watched. With the word "dana" (magic), the blacks explain to themselves everything that passes their understanding.

English scientists—Mr. F. C. Selous, Mr. F. J. Jack-

son, and others—have characterized the double-horned rhinoceros as irascible, excitable, and highly whimsical. There is no counting on what a rhinoceros may do when approached or attacked. One of my own adventures, which I had in November, 1903, may illustrate this point. I had spent the whole forenoon trying to get a camera-shot at a troop of giraffes. I could not get near enough to the animals, which were unusually shy. Disappointed, tired, and thirsty, I was on my way back to the camp when I became aware of two rhinoceroses which, for some reason or other, were abroad on the steppe in broad daylight, and in spite of the heat. I was about four hours' walk from the camp, and three thousand feet from the animals. A slight but unfavorable breeze was blowing, and I walked in a large circle to approach the animals against the wind. After half an hour I saw them lying under a big bush. Accompanied by four of my men, I managed to get within three hundred and sixty feet of the animals. We took cover under a moderately thick thorn-bush growing on a deserted ant-hill. There were, fortunately, no rhinoceros-birds with the animals, and our presence remained, therefore, unheralded. I had taken several long-distance pictures of the resting animals, when they suddenly arose, apparently without any cause. The nearer animal, a cow rhinoceros, moved her head to and fro, scented us, and rushed, her head erect, accompanied by the bull, towards us. I quickly handed

my camera to the carrier, grasped my rifle, and fired six times in quick succession. Twice the wounded animals stumbled and fell, and twice they rose again. My last bullet, fired at a distance of ten feet, lodged in the neck of the cow. Running for dear life around the thorn-bush, I was checked for a moment by one of my men, who jumped into the bush, and found myself for a second between the bull and the cow. Though mechanically running away from the animals, I felt that there was no escape possible. And yet I was saved as by a miracle. My shots took effect at the same moment on both animals. I was, perhaps, sixty feet from the thorn-bush, when I heard my man in the bush shrieking at the top of his voice. Turning around I saw a strange sight. My Masai-El Morane was trying to push himself farther into the bush; the cow, literally touching him, stood there tottering and drenched with blood; behind her the bull had dropped, beating the ground with his mighty head in death agony. I quickly reloaded and killed the animals. This exciting adventure and narrow escape haunted my dreams for many a night, and even now, when I think of it, I do so with a deep sigh of relief.

As a rule, the animal is rather shy at night-time, but there is no depending on his mood. One evening I was obliged to pitch my camp, for the night, in a valley covered with thorn-bushes. At night I was suddenly startled from my sleep by the subdued cry of one of my

A MARVEL--THE TWO RHINOCEROSES FELL DEAD SIMULTANEOUSLY

men, "Bwana, tembo!" (master, an elephant). Quickly jumping up, I seized one of my rifles. My men, too, had become aroused. Some of them, horror-stricken, pointed to a black form, about one hundred feet from my tent. There it stood, motionless, as if cut out of stone. It was a large rhinoceros standing among the small tents of my men, and wondering, no doubt, what kind of intruders had invaded its feeding-ground. My men, well-trained and obedient, did not fire, but lined up behind me. I thought it best to get the start of the still motionless animal, and fired. The rhinoceros answered by a grunt, wheeled about, and vanished into the thicket.

I had an adventure with two rhinoceroses at night when I first came to Africa, and was not yet familiar with their ways. The night was not dark, but moonlit, and we were not encamped on the path of the animals. It was a cold night, too, and I had covered myself with several woollen blankets. I was awakened by the guards who reported two rhinoceroses to be close by camp. Without dressing, I rushed in my night-gown to the edge of the camp. The animals had left in the mean time. I followed them in my primitive costume about six hundred feet. The beasts were at a safe distance, and I gave up the fruitless pursuit.

The immense African steppe harbors even to-day thousands upon thousands of rhinoceroses; but, no doubt, their days are numbered, like those of the ele-

phant and other big game. With the last "pharu" another seemingly unconquerable race of animals will be exterminated, its haunts being claimed by modern progress and civilization.

Millions and millions of these colossal mammals have roamed over North America, Europe, and Africa, from the Oligocene time to our day. The lone remnants of a once numerous group will — perhaps within a few decades—succumb to the cunning of dwarfish bipeds, who have learned to lay low with small pieces of metal the giant children of wild nature.

XIII

CAPTURING THE RHINOCEROS

MY friend Dr. L. Heck wrote in 1896, in his book *The Animal Kingdom*, the words, "The day will be a memorable one for our zoological gardens (in Berlin) which sees the acquisition by them of a rhinoceros from German East Africa." In the same year I went to East Africa for the first time. All efforts made so far to bring a young elephant or a young rhinoceros alive from British or German East Africa to Europe had been unsuccessful. I fully realized the enormous difficulty of accomplishing this task, but on my fourth journey to the "Dark Continent" I succeeded in bringing away a young rhinoceros which, at last reports, is still disporting itself in the Berlin zoological gardens. But neither I nor any one else has so far been able to bring a young elephant alive from East Africa to Europe.

It is exceedingly difficult not only to capture a young rhinoceros, but equally hard, and even harder to raise it. For it needs a milk diet, and milk is a rare article in a country where the transportation and keeping of

WHITE RHINOCEROS CALF DRINKING

cattle are so precarious; for the most part they fall victims either to the rinderpest or the poisonous sting of the tsetse-fly. Moreover, this necessity of keeping the captured young animals on a milk diet during the critical period of their life also accounts for the fact that we do not find any East African elephants, giraffes, eland antelopes, oryxes, Grant gazelles, impallahs, water-bucks, wodoos, and other wild game in our zoological gardens, not to mention the smaller animals of the East African Nyika.

While I was encamped on the west side of the Kilimanjaro, in May, 1903, I decided to make another effort—many had been in vain—to raise a young rhinoceros for transportation to Europe. I acquired, therefore, a number of cows, stabled them well, and then went to look for the *conditio sine qua non*—namely, a young animal of still tender and docile age. The rainy season was just over, and the high grass, together with the thorn-bushes, made the steppe almost impenetrable. After searching the neighborhood of my camp for many days, I located, at last, a female rhinoceros with her young one. The mother had become suspicious and was apparently scenting me. I did not want to lose a moment, and fired, although the position of the animal was not favorable. The beast wheeled about and disappeared with the young one into the thorny wilderness. I had wounded her but slightly. Now began an exciting and difficult pursuit through the impeding

thorn-thicket. Our clothes were torn into shreds, and our hands and feet and faces and bodies were bleeding with many scratches. Every moment we might come up with the wounded and infuriated animal. My blacks climbed on ant-hills which afforded a good look-out. At length one of my men beckoned me violently. I climbed the ant-hill and saw another rhinoceros, a bull; but I did not care for him just then, and was glad to see him running away from us. Again we followed the tracks of the fleeing cow and the young one. This was no easy matter, since their tracks were crossed by those of animals which had passed there during the night. The thick growth of bushes and plants and grasses only impeded our progress, but would not protect us against the animal which would break down bushes and young trees like bits of straw.

Noon came on; we were still fighting our way through the thicket, exhausted and thirsty. Hour after hour passed. We were on the point of giving up all hope of ever reaching the animals, when we came to a pool formed by rain-water in which the rhinoceroses had wallowed and refreshed themselves. It was anything but tempting, being muddy and malodorous, but our thirst conquered our fastidiousness. We drank and were thus enabled to continue our pursuit till nightfall, with the prospect before us of being obliged to camp on the steppe all night, frequented as it was by numerous wild beasts.

The traces left by the old animal and the young one showed that they were moving in a big curve in the direction of our camp. Suddenly, as we moved on, I spied the mother standing not far from me under a locust-tree. In an instant I took aim and killed her by a shot in the ear. The young one uttered a piercing cry, made a few steps towards us, turned about, and fled. My men and I followed in hot pursuit. As it turned and charged us, I caught it by the neck, and fell with it to the ground, while my men roped its legs. By holding a piece of the mother's skin before it, I induced it to follow me for some distance. But then it stubbornly refused to go on, squealing and fighting by way of protest. I left four of my men with it, returned to the camp, and sent a sufficient number of carriers to fetch it. Towards evening it was brought into camp protesting at the top of its voice against its capture.

Now the difficult task of raising the animal began. My cows died one after another, and, fortunately, the rhinoceros took very kindly to a goat. I looked out for my precious captive with the utmost care, often giving it the bottle myself. When I proceeded with my caravan on my march into the steppe, I left it, with its attendants, in charge of ex-Sergeant Merkel, who took excellent care of all. When I was ready to start to the coast, I found it fairly grown-up and quite gentle, and, in fact, able to cover the whole distance on foot. To avoid the great heat of the day, we often marched at

INFANT RHINOCEROS BROUGHT UP ON A BOTTLE

night, and I seldom let the creature out of my sight. I intrusted its welfare to no one else, as I could ill-afford to lose it after seeing it safely nursed beyond the period of lactation.

We reached Naples without accident. There the young rhinoceros, the first ever to be brought alive to Europe from German East Africa, was an object of great curiosity. Dr. Heck had come on from Germany to meet us, and had brought with him a special car for the transportation of the rare animal. We decided, however, to ship it to Hamburg by steamer. In spite of a two days' storm in the Mediterranean it arrived hale and sound in Hamburg, where Mr. Hagenbeck made everything very comfortable for it. It has now become completely reconciled to its new home and surroundings, and still enjoys the company of its wet-nurse, the African goat.

I was not quite so lucky with the nursing of two other young rhinoceroses which it was my good fortune to capture. Once, while on a hunting expedition, I discovered the tracks of a rhinoceros with its young one near a drinking-place. I followed the animals for hours over stony, hilly ground. With me were Orgeich, my European taxidermist, and fifty natives. At last I managed to creep up to within about three hundred feet of the beasts. They were standing under a locust-tree. I fired; the bullet pierced a dry branch of the tree and had force enough left to kill the older animal.

The natives stole up to me, and then ran right and left forming a circle around the young one. But it broke through the line and escaped. Next day I returned to the place with one hundred men. The young animal, too, was there, but again managed to elude us.

Another time we followed the tracks of two animals for over seven hours before we discovered them standing still in the thorny steppe in the light of the setting sun. I killed the mother, but the young one escaped, running from us more quickly than we could follow. I should not have thought of shooting the old female had it not been for the hope I had of capturing her young. I waited a long time near the dead animal, hoping it might return, but in vain. Again the labor of a whole day had been lost.

We returned the next morning and found, not the young animal for which we were looking, but hundreds of vultures and a number of marabous. I ordered my men to secure the horns and to take the most desirable pieces of the flesh to the camp. The evening before I had noticed a few rare birds flying above a ravine. I went to look for them, accompanied by three rifle-carriers. Suddenly I was startled by the sight of the long-sought young rhinoceros, which proved to be a bull. I had not noticed him sooner because he had apparently been bathing in the reddish mud of a rain-pool, and did not stand out from the reddish ground of the steppe. He did not run away, but lowered his head and charged

us without hesitation. Evading the thrust of the small horns, I threw my arms around his neck. We wrestled for quite a while, now he on top, now I, until my men, leaving the dead mother, ran to my assistance and tied the young fighter's legs. We carried him in triumph to the camp on an improvised litter. For a few days he thrived well; but a malignant ulcer developed on his lower jaw which soon caused his death. This was only one of many failures. The greater the efforts, the keener the disappointment. Yet a hunter must not become discouraged, but try and try again. In East Africa he is particularly handicapped since he cannot use horses when pursuing his prey, and the unhealthy climate or the sting of the tsetse-fly may at any moment turn success into failure. Disappointments such as I have described are often aggravated by accidents and even loss of human life. In the mountainous region of the Masai-Nyika, about six thousand feet above the level of the sea, I discovered once, towards evening, a mother rhinoceros with her young one. The animals were half hidden by shrubs and bushes. I killed the mother and ordered my men to pursue and surround the young. Too late I noticed that the young animal was already well developed and had horns of considerable size. My men were then beyond the reach of my voice. My boy Hamis, the peaceful guardian of my riding asses, was leading the rest in hot pursuit. Suddenly the animal stopped short and turned against his pursuers. Hamis,

being the nearest, was in imminent danger of being transfixed by the horn of the enraged young bull. The boy ran yelling in my direction; now they were within hailing distance, the animal closely pressing the man. There was but one chance in ten that I might hit the bull and not the boy. But better that he fall by my bullet than be run through by that tusk and die in agony. I fired at the neck of the bull. He fell instantly, covering in his fall the black donkey driver, who had escaped badly scared and only slightly bruised.

A number of favorable circumstances must concur to make the capture and raising of a young rhinoceros possible. May other hunters also be fortunate enough to bring some of these rare animals alive to our zoological gardens in Europe and other continents.

All in all I met about forty female rhinoceroses with their young ones. In most cases I did not attempt to shoot the old and to capture the young, because the latter were already too big, or because I met the animals too far from my camp, or because conditions made it impossible to supply the necessary milk diet, even in case I should succeed in capturing the young animal. Under ordinary conditions the true sportsman will never kill a cow or a young one, but show his mettle and his true sporting spirit in hunting the male rhinoceros.

XIV

THE HIPPOPOTAMUS

THERE is no doubt that the "river-horse" will have a longer lease of life than both the elephant and the rhinoceros. This is not due to the fact that it is less hunted, but simply because the endless marshes of the Upper Nile and the vast swamps and waterways of the Congo basin will preserve the animal indefinitely.

It is long since the hippopotami occupied also the northern part of Africa. The name of "Nile-horse" was justified when the animals possessed the whole valley of the river down to the delta. To-day they, as well as the larger kind of crocodiles, are not seen any longer below the cataracts.

Professor Fraas, of Stuttgart, has discovered bones in the valley of the Nile which prove the existence of an ancestor to our hippopotamus in the Eocene time.

These gigantic "river-hogs"—for they belong to the swine family—are likely to die out speedily, not only in the valleys of the East-African rivers, but also in the big Central African lake region, although the English government has issued ordinances calculated to preserve

the animal on the English shore of the Victoria-Nyanza.

Not so long ago a kind of pygmy hippopotamus was discovered in Liberia, West Africa. Little is known about this small species. It appears to be restricted to the Guinea coast, to be less aquatic than its larger East African relation, to live in pairs but not in herds, and to wander and seek its food in the swampy rivers of the virgin woods. From the time of Herodotus to our own many travellers have told us that the "river-horse" is malicious, dangerous, and aggressive; others that it is peaceful and inoffensive. The latter opinion is probably the correct one; but where it is much hunted it is apt to merit the harsher opinion.

Hunting the "river-horse" is a pretty harmless affair compared with hunting other big animals, such as the lion, elephant, or rhinoceros, and it is consequently much indulged in by travellers and natives. It furnishes to the latter large quantities of palatable flesh.

The hippopotami are often found in considerable numbers during the dry season in deep river-pools which retain their water or in small lakes. They offer then a great temptation to reckless nimrods of a certain kind. But also a true sportsman may kill more animals than he really intends to, if he is not well acquainted with their nature and habits.

An officer of the German colonial troops told me himself that he had unwillingly and unwittingly killed over

HIPPOPOTAMUS IN A SWAMP AT NIGHT

thirty animals in a short time, when in the beginning of his stay in East Africa he chanced to come upon a large pool inhabited by river-horses, or, as they should be called, "river-hogs." He saw the heads of a few animals and fired at them. They disappeared, and, as he ignorantly thought, came to the surface again. He kept up his firing as long as his ammunition lasted, and was greatly astonished when he saw, a few hours later, thirty dead bodies floating about on the surface.

He did not know that these animals, when mortally wounded, sink immediately, often not floating again for two or eight hours. The officer saw the error of his ways, and, like a true sportsman profited by his experience. But the average hunter does not, and this accounts for the rapid extermination of these animals in East Africa.

I saw, in 1899, in the small lakes between the Meruberg and the Kilimanjaro—discovered by Captain Merker—at least one hundred and fifty river-hogs. When I passed the lake again, in 1903, the number of "viboko"[1] had dwindled down to a dozen or so.

The river-hog is perfectly at home in the water. It swims well, is able to dive quickly and to remain a considerable time—up to twelve minutes—under water. It need rise only at intervals in order to breathe. It may do so by merely raising its nostrils above the water, and thus remain protected, since a telling shot can be

[1] Plural of *kiboko*, the native name for the hippopotamus.

fired only when the eyes and nostrils, at least, are exposed at the same time.

When last I visited the Merker lakes I took a few good pictures of hippopotami in the water and also killed a very old male animal by a single shot in the ear. I had been given special permission to do so, but I found another hunter busy exterminating the small remnant of river-hogs in these lakes. He claimed to be a Boer—De Wet he called himself—and he had been allowed to pass Fort Moschi and travel into the wilderness unchallenged. The officials had taken his word for it that he did not mean to hunt, but merely catch marabous for the sake of their feathers. They even exempted him from paying the tax on killed marabous, since he pretended to be able to capture the birds alive, pluck their feathers, and then release them. In fact, his method consisted in killing the marabous which collected on the bodies of river-hogs killed by the ingenious Boer. He was really a professional hunter backed by some Greek merchants to collect marabou feathers and to gain the valuable teeth and skins of hippopotami. I did not hesitate to denounce this impostor to the officer in charge of Moschi station, who had him arrested. For seven years he had been carrying on his nefarious business in different parts of Africa. His backers, however, paid the fines, and the authorities had to let him go.

The hippopotamus was formerly hunted not only for

its hide, out of which bull-whips may be made, but also for the ivory of the great canine teeth. This ivory is not as much valued now as it was early in the nineteenth century, when it was in demand for the making of artificial teeth. Would that modern science could also find a substitute for the elephant ivory, which is still used for the manufacture of billiard-balls.

In the year 1896 I spent some time on the shores and near the inlets of the Victoria Lake. I found the natives there in perfect harmony, and on a peace footing with the numerous river-hogs. It was a strange sight to observe the natives fishing from big floats surrounded by these amphibious mammals, while crocodiles in plenty were sunning themselves on the neighboring sand-banks. I am convinced that the disposition of the river-hog is harmless and peaceful, and that the animal becomes malicious and aggressive only when molested and much hunted. Dr. R. Kandt made the same observations regarding these animals in Central Africa.

All stories of travellers that the hippopotami have to be kept away from the camps at night by firing at them, so as not to endanger the safety of the camp, are either base fabrications or exaggerations. It is, of course, very interesting reading to learn how the traveller had to protect himself against the night attacks of these monsters; it is thrilling, but untrue. Many travellers, no doubt, strictly instruct their guards to fire at practically everything that approaches the camp, prompted

less by any real danger than by their own fear. I myself made it a rule, on my travels, not to allow any of my blacks to fire, not even at night, when on guard duty, before they received orders or permission to do so, except, of course, in an emergency. But then I travelled only as a collector and observer, not as a hunter, and I made it a point to study the character and the habits of the beasts of the wilderness, and was willing to be guided by my knowledge and not by fear or the desire to kill all within sight.

I have never been really molested by the river-hog, even while encamped on the very banks of rivers, swamps, or lakes, although many a curious animal paid the camp a visit at night. Once only one of my Askaris found it necessary to scare away an animal by firing, as it touched the canvas of my tent.

One day I killed a bull hippopotamus. My Wandorobbo men rushed without hesitation into the small pool, although there were two "makaita" left in it, and secured the dead animal. They almost touched the two living ones who came at intervals to the surface to breathe.

Remarkable, also, is the peaceful association of the river-hog and the crocodile. Even the young hippopotami do not run much risk of being swallowed by the big water-lizards, because their mothers protect them most assiduously against all enemies, including the male river-hog, who, when in a rage, will try to kill the in-

VULTURE ON SKULL OF A HIPPOPOTAMUS

fants. The mother supports her young upon her neck until it is able to swim and to take care of itself. The attitude of the crocodiles, however, changes towards a dead hippopotamus. The water-lizards are usually informed of the presence of a dead river-hog by the "bloody sweat" exuding from the pores of the excited animal and floating down-stream. Then they will come on in great numbers and bite and tug at the carcass. I have been a witness to such scenes at different times. Once I killed an old hippopotamus in a stream. The current drove it against a sand-bank and washed it up on the sand. I sent the two men who were with me to the camp to call for more men and to get ropes. Shortly afterwards I saw, first one, then several heads of crocodiles appearing above the surface some distance below the sand-bank — the water-lizards had scented the dead animal. I stood only a few yards away, behind the trunk of a tree, and curiously watched the strange scene. A head appeared above the water close to the carcass for a second, disappeared, and a moment later a crocodile about twelve feet long climbed up on the dead river-hog. The lizard opened its jaws and tried to bury its teeth in the dead body. Involuntarily, I made myself as small as possible behind the tree. It did not last long when about twenty crocodiles assembled around their prey and were tugging at it with all their might. The thick epidermis resisted their teeth, but they tore off the ears, part of

the snout, and the tail of the hippopotamus. I knew they had no chance to tear and eat up the body itself until its decomposition began. But they were tugging so hard at the animal—when they were not fighting one another—that I was afraid they might pull it back into the swiftly flowing river and I might lose my booty.

In large rivers one should shoot the hippopotamus only when one can be reasonably sure that the dead body, floating down-stream, will be caught on sand-banks or shallow rapids; otherwise the animal will be lost to the hunter. I therefore fired from behind the tree at the rapacious lizards and killed fifteen, until, after an hour, my men arrived.

The speed with which the clumsy-looking, short-legged river-hog can move on land is remarkable. Twice I had occasion to observe the flight of hippopotami on land; once I had a narrow escape from being killed by a river-hog. I met the animal on land towards the evening. I fired, but only wounded it. Instead of trying to escape into a large lake in front of it, it rushed in my direction towards a pool behind me. I managed to fire a second time. The animal turned away from me and after a few paces fell to the ground dead. I meant to shoot a third time, but my repeating-rifle refused fire. I was thus saved by sheer luck.

Another time a hippopotamus, at which I had shot from the river-bank, suddenly appeared above the water, directly in front of me, climbed the bank, opened its

ugly, fearful jaws, but broke down before it could advance farther.

These beasts, while naturally timid, are also exceedingly curious. Captain Merker told me that the natives living around the inland lakes allure the animals by the cry, "Makau! makau!"

I had often heard that the hippopotami are very dangerous to canoes and boats, and was consequently very nervous when I sailed some of the African rivers and lakes in my fragile folding-boat. I shall never forget my sensation when, in navigating a stream, I suddenly saw the heads of two river-hogs emerge from the water only a few feet away from me. However, they did not demonstrate their "overthrowing" tendencies against me. The only time my little boat was attacked and upset the aggressors were crocodiles.

I met with a great many river-hogs in the Rufu River, which is navigable only for very small boats. I was one of the first Europeans to hunt in the woods bordering on this river.

The animals love to rest and sleep on islands in the rivers and lakes, and they frequent the same sleeping-places for years. They are very skilful in climbing even steep banks, and use the same paths to and from their watery domiciles. The natives—for instance, near the rivers emptying into the Victoria-Nyanza — who are very fond of the flesh and fat of the hippopotami, dig pits and arrange for their capture on and above the

paths trodden through the water-side jungles. One of their favorite methods is to suspend a loaded javelin with a poisoned head from a tree-branch, and to drop it on the passing animals. Those hit and poisoned will die in the water, where their floating bodies are secured by the negroes.

The "el makaunin" has the strange habit of brushing its excrement high up on the bushes by means of its short tail, which is naked except for a few bristles at its extremity. Such bushes are probably "guiding-posts."

In 1896 river-hogs were still abundant in the Nsoia River and the Athi River, in British East Africa. They were also found in large numbers along the coast between Dar-es-Salaam and Pangani. I observed many in the surf of the sea and on the sand of the beach. They frequently travel along the sea-shore from river to river, and they often go some distance out into the sea in the estuaries of rivers. The salt-water seems to have the effect of freeing the animals from certain parasites.

Still eight years ago a number of river-hogs could be seen in the harbor of Dar-es-Salaam. They were preserved and protected by the government. One of my first surprises after my first arrival in East Africa was to see one of these animals suddenly rise out of the water before me when I was hunting wild pigs. It was my introduction to the gigantic beasts of East Africa.

To raise and preserve young hippopotami is much more easy than to bring up young elephants and rhinoceroses, yet there are few specimens of East African river-hogs found in Europe. Grown-up animals have been captured, but their transportation was never a success, for one reason or another. One animal I know of had been caught and successfully caged; when the cage was upset by the beast itself, it was severely injured as a result and soon died.

The ancients were far ahead of us in this respect. They captured and transported to Rome and other cities, for their games in the arena, not only hippopotami, but large numbers of all the big African beasts.

The scent of the river-hog is keen and its vigilance great, and, while its big head contains but a small brain, the animal is by no means stupid. I realized this when I tried to take pictures of them at night by means of the flash-light. Only after repeated failure did I succeed in my purpose.

One who has no acquaintance with the clumsy animal in its native haunts, and has not studied its ways and habits in the wilderness, will hardly fully agree with me when I claim that the sense of smell of the hippopotamus is developed far beyond our experience and understanding, and that while the brain of the animal may be developed one-sidedly, it effectively uses it for its self-protection and self-preservation.

XV

BUFFALOES AND CROCODILES

IN the fall of 1899 I encamped by the Pangani River, about midway between its source and its mouth.

My European taxidermist and I were busy preparing and packing hides and skins, and I did not leave the camp for a fortnight. I had, however, sent out some of my men to locate, if possible, the haunt of a buffalo herd which was supposed to have its feeding-grounds near the river. They did not find the herd, but discovered two natives, Waseguha fishermen, who lived in a small hut in the woods near the river. One of them was brought to the camp. He was very indisposed to give us any information, but I learned, at last, that a big herd of buffaloes was hiding in the inaccessible swamps of the Pangani River. I broke up camp at once and moved down-stream near the Lafitte Mountains. On the march, which lasted six hours, I shot two horned owls (*Bubo lacteus*). I also noticed a large herd of from one hundred and fifty to two hundred water-bucks. I re-encamped opposite a large island, the lower end of which touched the inaccessible

swamps of the river. The camp I connected with the island by a primitive bridge of tree-trunks and bushes.

The next day, September 3d, I reconnoitred the island. Several thousand water-bucks were herding on the island and in the surrounding "gambo." Not to disturb the yet invisible buffaloes, I refrained from hunting game; besides, my caravan was well provisioned with Indian rice. But I was almost forced to make use of my rifle against my will when I was nearly run down by two big rhinoceroses. I had strolled away about three hundred feet from my men, and was following the cry of the honey-guide, hoping that the little bird might bring me to the nest of wild bees, for the stored-up honey is a welcome delicacy in the wilderness.

I soon found out that the habits of the buffaloes were nocturnal. The grass on the island was partly withered from the heat; only on the edge towards the swamps was it still green. Hundreds of swallows (*Glareola fusca*) nested in the luxuriant swamp vegetation, and myriads of mosquitoes filled the air at night-time. I also observed that a few baboons and long-tailed monkeys had made their home on the island.

The water-bucks went to and from the island, fording the river in shallow places without fear of the crocodiles. They, like the buffaloes, seem not to fear these reptiles any more than do the river-hogs, whose voices we could hear from the large swamps.

In the water surrounding the island crocodiles seemed to be on guard and ready to attack any living creature fording the river. I often saw dozens of them lying on sand-banks and basking in the sun. Not far from them, on the same sand-banks, herons, Nile geese, and other swamp and water birds were watching for prey. These birds seem not to fear the crocodiles, but they are, nevertheless, on their guard; they avoid the deeper places of the streams, where these reptiles might attack them unawares. A kind of "armed peace" exists between these birds and these saurians. In the Sudan a little bird acts as the guardian of crocodiles, warning them of approaching enemies. The buffaloes could not have chosen a more unhealthy spot for their haunt.

In vain I tried to find the haunts of the buffaloes in the swamps. I followed the tunnelled paths of the hippopotamus for hours, only to return after a fruitless search to the camp, cut by the sharp reed-grasses and stung by mosquitoes. Finally I became convinced that the buffaloes had no regular paths at all, and that they could hardly be approached in the swamps, although I could locate them in a general way. Wherever the herd was, resting or moving, a number of herons could be seen circling in the air, for they feed partly on the parasites that live on the buffaloes. The island, too, was swarming with insects and teeming with vermin. Although the camping-ground itself was fairly free of them—for it had been cleared of grass and shrubs and

bushes—one could not walk about the island without becoming covered with hundreds of ticks of various kinds. My thick-skinned blacks were comparatively immune, but I and my European taxidermist, Mr. Orgeich, suffered greatly. I tried to pick the insects off my skin myself, and to remove them by sublimate ablutions, but the only way to get rid of them was to strip and have my blacks act like the monkey does when he relieves his fellows from vermin. They removed from me daily fifty to one hundred of the small blood-suckers.

So I passed many "painful" days and sleepless nights on the island, which I named Heck Island, in honor of my friend Dr. Ludwig Heck, but the buffaloes managed to keep out of my sight. It was not timidity that made them so cautious, for the buffalo is strong and an excellent fighter, but they were made careful by experience not to expose themselves to the flash of the rifle and the touch of the poisoned arrow.

Still I persisted in waiting patiently, though many of my natives began to suffer from malaria. To keep well myself I increased my daily doses of quinine.

As a pastime during the evenings and nights, my men and I fished for crocodiles with line and hook. I had connected the island with the right bank, also, by means of trees cut down on the island and the bank. The trunks of the enormous trees and their intertwined tops formed a kind of river-bar, above and below which gathered numerous reptiles. I had some shark-hooks

with me. I baited them with large pieces of meat. Whenever I had a bite from an animal, I gave it a long line, about one hundred and fifty feet of thin, strong rope. Then ten to twelve of my men pulled for all they were worth and dragged the crocodile—often weighing a thousand pounds—to the bank. While the saurian was beating the water with its awful tail, I killed it with a shot aimed at a spot just behind the head. The dying animal emitted a sickening smell of musk. I often caught six or more crocodiles in one night. We had to be very careful to keep out of the reach of the flexible and powerful tail of the animal. One of my men was particularly eager to catch the hated "mamba"—he had once had a narrow escape from a reptile and had sworn to take revenge on the whole brood.

The stomachs of most of the reptiles contained bones of mammals and fishes, and also pieces of quartz, often as big as an apple, swallowed to aid digestion. In one animal I found a vulture, which I had killed and thrown into the river—the crocodile had swallowed the bird whole. It is very difficult to observe the intimate life of the crocodile, and therefore our knowledge of its ways and habits is rather scanty. Even the young reptiles are exceedingly shy and cautious. The larger they grow the more careful they become. They always live in water deep enough for their size, so that they may watch for their prey completely hidden themselves.

I once arrived, after a long march, at the bank of a

large river. The cattle I had with me went up to the water's edge, but did not drink; no doubt they scented danger. My men threw large stones into the water, with a great deal of noise; the animals then drank their fill of the precious liquid and pastured on the fresh grass near by. The stragglers of my caravan arrived a little later, and with them came a small drove of cattle. The latter were quenching their thirst; one of them, a fine, black bull, advanced a few steps, his forelegs sinking deep into the river mud. Suddenly I saw the head of a crocodile emerge, and a second later the bull disappeared under the water. I hardly believed my eyes. Running to the spot, I noticed a few bubbles rising to the surface, but no sign of either bull or crocodile. My men and I ran along the bank, down-stream, and after a while we saw, on the opposite, distant shore, the body of the bull surrounded by a number of crocodiles. In the same way the reptile will prey on human beings, as I once had occasion to observe. I was with my caravan, on my way back to the coast, after a successful expedition (1899–1900) into the interior, when one of my blacks, who had drunk too freely of the sweet palm-wine, fell from the small bridge leading across the Pangani River near Korrogwe. The current carried him off before we could go to his aid and save him from the jaws of a crocodile, which in a moment had dragged him down.

Whenever we were forced to ford a river—the water

FLAMINGOES ON THE BORDER OF A LAKE

often reaching to the arm-pits—the natives prepared and drank some "crocodile-dana," while I fired at random into the stream to drive off reptiles that might be lurking about our path.

In the course of my expeditions I have met many natives who had been maimed by young crocodiles.

One may easily be deceived as to the number of crocodiles in a river. They swim along below the surface almost completely hidden from sight; only from time to time they raise their nostrils above the water. When they lie on sand-banks or on the river-shores or on overhanging branches of trees, they disappear as quick as lightning into the water at the slightest sign of danger.

Young reptiles hardly hatched—by the sun—squeal and bite when touched; old animals when captured utter a strange, wild sound, something between a snarl and a roar, a sound which I have also often heard free animals utter about the breeding-time.

The shot which tells best on a crocodile is the one which hits its head just where the vertebral column begins; it kills instantly.

My friend Captain Merker once had an amusing experience with the eggs of crocodiles. He had found a number of them near the volcanic Dschalla Lake, and had taken them with him to Fort Moschi. A week after he heard in his room a squeaking sound, as of young mice. He traced it to a cigar-box into which he had

put the crocodile eggs, and found that a few small reptiles had cast off their shells.

Our knowledge regarding the breeding of the oviparous African crocodiles, the care the female takes of the eggs—which are hatched by the heat of the sun—and of their young, is rather meagre, but naturally so, considering the shyness of the animals. They are least shy in the great lakes. I found many of them in the bays and inlets of the Victoria-Nyanza living rather amicably with the river-hogs and the native fishermen. It appeared to me like a picture of paradise to see the reed floats of the natives moving about on the waters peopled by hundreds of reptiles, river-hogs, and birds of all kinds.

At last my patience in trying to get a good shot—with camera and rifle—at the much-desired buffaloes seemed to become crowned by success. My Wandorobbo men had seen a herd of about thirty at daybreak, and tracked them to a small swamp which they had chosen as a resting-place for the day. After two hours' march, I arrived at the small swamp. One of my men climbed up a high locust-tree and pointed in the direction of the herd, while I tried to penetrate into the reed thicket. It was a dangerous undertaking. Up to my knees I waded for half an hour along in the muddy swamp; every step was impeded by the luxuriant vegetation. When I finally got within shooting distance of the spot pointed out by my man on the tree

—without, however, seeing the animals—I realized that I was on a fool's errand. How could I dare shoot without the slightest cover and protection and no chance of escape from the animals should they turn on me?

I therefore retraced my steps and joined my man on the tree, but could not make out the herd, however much I strained my eyes.

I decided to alarm the animals by a shot into the air. There ensued a great commotion far off in the reed thicket, but all I could see even then was an occasional pair of horns; the animals receded still deeper into the reed wilderness, which formed a natural preserve for them.

I gave up all expectation of ever reaching the buffaloes in the reedy swamp; one spark of hope was left—namely, that I might surprise the animals feeding near the island some night before break of day. My stand on the thorny locust-tree, however, caused me to make the unsought-for acquaintance of a particularly annoying kind of ants.

After two more days of patient waiting we found on a very cloudy afternoon that a herd of about sixty buffaloes had left the depth of the swamp and were grazing almost on the very edge of the island. Although their feeding-place could be approached only with great difficulty, I managed to steal up to within three hundred and fifty feet of the herd. My excitement was intense. I knew that the reed-grass offered me no real

VULTURES FEEDING ON A BUFFALO'S CARCASS

protection, yet this was my first and probably only chance to fire a well-aimed shot at the long-sought buffaloes. I singled out a bull feeding a few paces from the bulk of the herd. I fired; the bull threw up his mighty head and beat the air with his tail; a second shot and the animal sank on his knees; a third bullet and the bull fell dead to the ground. The herd disappeared in the reed thickets of the swamp.

At last my patience had been rewarded by a fine stroke of "hunter's luck."

The skinning of the animal, the transportation of the skin and skull to the main camp, and their preparation occupied us for some days. Then we left Heck Island with our trophy.

From my experience it may be seen that hunting the buffalo in the wilderness of East Africa is no easy matter. It was different before 1890, the year in which the rinderpest almost completely destroyed the buffalo herds in British and German East Africa. Hundreds of bleached buffalo skulls are even now met by the hunter in those regions, ghastly mementoes of that ravaging disease.

The time has passed forever when hunters—like Count Telekis, in 1887, at the Ngnaso-Niyuki—shot twenty-five buffaloes within three months; when, as Richard Boehm tells us, herds of hundreds of buffaloes roamed over the mountainous districts of the Kawende, on the plains and in the bush, attracting the hunter by their bellowing.

This all sounds like a tale of by-gone times. Yet the pest not only almost exterminated the buffalo, but it also destroyed the prosperity of the cattle-raising Masai tribes, and decimated their numbers by the famine which accompanied it. Often I found heaps of bones of cattle, and mixed up with them human skulls. They marked the camps of the Masai in 1890.

There are but remnants left of the once numerous and rich Masai nation. During the famine the men sold many women and children as slaves to their agricultural neighbors in exchange for food.

But few buffaloes are left in German and English East Africa, as I had occasion to find out for myself on my expeditions through the Masai-Nyika, the immense steppe.

A few herds I found in the swamps of the Pangani River, another near Manjara Lake; a few I sighted on the high plateau of Mau, nine thousand feet above the sea; a few also near the Ndjiri swamps. And even this small number, thinly spread over so large an area, is daily reduced by conscienceless European hunters and native soldiers—the Askari—of the colonial troops, in spite of all the precautions the colonial governments have taken, and in spite of all the ordinances they have issued for the protection and preservation of the almost extinct animal.

How long will it be—or, rather, how soon will it be—before the East African buffalo will be among the extinct animals, extinct by the hand of man?

XVI

THE GIRAFFE

ONE of the most interesting mammals is the giraffe, the tallest of quadrupeds, of which several species are found in Africa. Together with the newly discovered okapi, it is the most striking animal in appearance of the varied African fauna. It attracts our attention when we visit the zoological gardens or when we see its form in animal-picture books. Incomparably more vivid and lasting is our impression, of course, when we have occasion to observe the animal in a state of freedom in the wilderness.

One would think that the zebra, the leopard, and the giraffe, in consequence of their remarkably diversified coloring, are easily seen in their native haunts. But such is not the case. On the contrary, their coloring is in perfect harmony with their surroundings. Besides, one cannot expect always to see these animals at close range; they have to be made out from a great distance, as they are difficult to approach. In certain lights, however, the human eye may easily overlook them, even when they are very near, so perfectly do they

often blend with their surroundings, not only in the dry, but also in the rainy season. The general color of the giraffe varies considerably, even within the same herd. It ranges from pale chestnut to very dark chocolate, the females and young males being, as a rule,

BULL GIRAFFE AT ONE HUNDRED METRES DISTANCE

light in color. I have seen herds of forty-five and more animals the members of which differed greatly in their coloring, particularly in the irregularly shaped blotches; the old males are, in general, darker than the rest.

The giraffe preferably frequents the arid African plains; seven-tenths of German East Africa consists of nothing else, and are therefore an "Eldorado" for the giraffe, which need not select its haunts within easy reach of drinking-places, as it can go for days without water. Yet where water is available it drinks freely. Ordinarily the sap of leaves and twigs on which it feeds supplies liquid in sufficient quantities. Not only the different species of acacia, but also other leaf-bearing trees furnish the giraffe with food, but it never eats

grass unless it has to, as in captivity. Many animals which in a state of freedom browse on leaves and tender twigs of trees, bushes, and shrubs, but never or very rarely on grass—elephants and rhinoceroses and giraffes, for instance — are fed in captivity mainly on hay or fresh clover and grass, as it is impossible to furnish them with the enormous quantities of leaves and twigs which they need. It is remarkable how well most of these animals adapt themselves to the change of diet and how well they thrive on it. The giraffe, however, never looks as well-fed in captivity as it does in freedom. Many of my pictures, which were taken of the "twigga" in the wilderness, clearly show this.

Some animals, like the kudu, never get quite accustomed to the changed conditions of climate and food, and soon die in captivity.

While the arid plains of the steppe are the regular habitat of the giraffe, it is also met with in the mountain forests. I found it in woods over six thousand feet above sea-level.

One of the most interesting and valuable pictures I ever took is that of an old bull giraffe in company with two aged male elephants.[1] I had followed the trio for weeks through the forest of the western Kilimanjaro, waiting for the propitious moment when the sun would break through the clouds and make it possible for me to take the much-desired long-distance picture. It was

[1] See page 113.

GIRAFFE NEARING THE CAMERA

in the month of June, when the nights are starlit and the days are cloudy. I had repeatedly noticed this association of giraffes and elephants. Once I also saw an old bull giraffe way up in the mountain forest amid a herd of eland antelopes.

The giraffe most likely prefers, at times, the woods to the comparatively treeless steppe, not only on account of greater safety, but also to avoid the blood-sucking tabanus and other parasites.

When I first went to East Africa, in 1896, I was told that the rinderpest had almost exterminated the giraffe, and that it was met with only in the remotest interior. No doubt that disease has carried off many giraffes, as well as other animals, but they are still found quite frequently.

As much harm as the murrain may have done, just as much, if not more, is done by reckless hunting. The hunting of elephants and rhinoceroses being difficult and extremely dangerous, the giraffe is a welcome and easy target, not only to the white hunter, but also to the Askari. This target-practice was frequently encouraged. It is to be hoped that the resolutions of the international conference lately held in London for the protection of wild game will bear fruit. The ordinances issued for German East Africa by Count Goetzen are a promising beginning. It is favorable to the preservation of the giraffe that the Mohammedan Sudanese Askari do not eat the flesh of this animal.

The natives, too, are fond of hunting and capturing this animal by poisoned arrows and deep pitfalls.

The giraffe was formerly extensively found from Nubia to the Cape of Good Hope. In South Africa it is now wholly extinct. A well-mounted hunter could shoot it at will, and its skin furnished the Boers with the long and effective whips for their ox-teams. Since the giraffe has disappeared from the Transvaal, German East Africa has supplied much of the demand for the highly valued skins, and for a long time their market-price was quoted in the Tanga paper. The animals were hunted in the remote interior, their skins were cut into narrow strips, packed in bales of sixty pounds, and carried to the coast for exportation. The hunting is now much restricted and the supervision by the custom-house officers strict and efficient.

The giraffe is by nature shy, and, when much hunted, like all other animals, becomes very cautious. In the steppe of the interior I have approached the giraffe within six hundred feet, and nearer still in the bush. It is exceedingly keen of smell and hearing, and still more so of sight, and taxes the skill of a good sportsman, especially in East Africa, where horses cannot be used. The large, lustrous eye commands a wide angle of vision, and the leading bull or cow is constantly on the lookout while the herd rests in the shade of the trees. A switch of the long tail warns the herd, and it seeks safety in immediate flight. The animal's pace is a peculiar gal-

lop, the fore and hind legs of the same side moving at the same time.

I found it very difficult to photograph the giraffe, and only succeeded, after many fruitless attempts, in taking pictures of this fleet animal in full flight. The light must be favorable if they are taken in the open steppe; among trees and bushes the animals stand out very little from their surroundings. The coloring of the species which I discovered, for instance, is rather vague. At some distance it is often very hard to distinguish the animals, their long necks and heads almost exactly resembling dead and branchless tree-stumps.

To see a whole herd of giraffes in motion is a strange sight. The characteristic pace makes their bodies swing to and fro, and their necks look like so many masts of ships rolling about in a heavy sea. This motion is invariably accompanied by a pendulous swinging of the tails.

In my opinion, the tail takes the place of an "organ of speech" for the giraffe, which is entirely mute. Its variegated swinging, turning, switching, and curving, no doubt, constitute a code of signals, a kind of animal "deaf-and-dumb language." This "tail language" is supplemented by expressive postures of neck and body, so that the giraffes have quite an extensive vocabulary at their command in communicating with one another.

On two occasions I found the red-billed bird friend of the rhinoceros associated with the giraffe.

It is very difficult to prepare and preserve the skin of the giraffe, especially that of an old bull, because large quantities of salt and alum are needed for this pur-

GIRAFFES IN A CLUMP OF ACACIAS

pose, and large vessels for the impregnation of the skins. This is the reason that so few museums possess specimens of full-grown bull giraffes. I myself succeeded in preserving a number of hides of young males and females, which are now on exhibition in the museums of Stuttgart, Munich, Karlsruhe, and

other German cities; but, although I tried my hand at preparing the skins of three big bull giraffes, I had to relinquish the task as impossible, for they were of the toughest description. These skins grow, naturally, more and more valuable the rarer the animals become.

According to Mr. H. A. Bryden's report, ten years ago, three hundred giraffes were killed within a short time, near the Ngami Lake, in South Africa, by natives hunting in the employ of European traders. The skins brought four to six pounds sterling apiece. This was, as Mr. Bryden states, only a small fraction of the number of giraffes killed at that time south of the Zambesi River.

It is high time to secure as many skins as possible for our museums; for, in spite of all protective laws, the giraffe will soon be counted among the extinct races of animals. Since the invention of the far-reaching small-caliber rifle and the smokeless powder, the tall animal may be easily killed even by an amateur hunter; the target is large and the danger of hunting only slight. Many animals, shot at by unskilled hunters, escape to die in the thorny thickets of the acacia forests, and to be eaten up by vultures and hyenas. It is fortunate that the giraffe cannot be hunted on horseback in East Africa—horses cannot stand the climate—otherwise it long ago would have suffered the fate of its South African relation.

I am convinced that the giraffe is absolutely mute,

and Mr. A. H. Newman, the well-known English elephant hunter, holds the same opinion. Dr. Heinroth, however, claims to have heard the young bull giraffe in the Berlin zoological gardens utter, at times, a slight bleating sound.

The giraffe is an inoffensive animal, and runs away rather than fight, for it is comparatively defenceless.

BULL GIRAFFE IN FLIGHT

The only weapon it uses appears to be its heels. But it can use them with good effect against man and lion, its only enemies.

I have often found giraffes killed by lions, but I believe, as a rule, it takes two or more of the felines to

stalk and to overpower a full-grown bull. Yet the "lion's ride" depicted by Freiligrath, the German poet, is a possible thing. Andersson relates that he once saw a giraffe with a lion on its back.

The powerful kick of the bull giraffe is apt to keep a lion at a respectful distance. The giraffe is even able to shake off his enemy and run away from him. Near the Grecei volcano I killed a bull with many scars and minus the tuft of the tail. The old bulls, as a rule, are wary and do not frequent the drinking-places, the natural hunting-grounds of the lion, as often as do the young and the females.

Where other game is plentiful the lion will leave the giraffe alone.

Yet, between the lion's tooth and the small-caliber rifle of the human hunter, the giraffe will not escape destruction.

XVII

ZEBRAS

THERE is hardly any zoological garden which does not possess one or more specimens of the African zebra. The zebras of the northern part of German East Africa are divided into two zoo-geographical species, the *Equus bochnu* and the *Equus granti*.

Although their number has been reduced considerably within the last decades, numerous herds of the beautiful *equidæ* are still roving over the wide steppe. The zebra is essentially an animal of the plain and of the thinly wooded forest, but it frequents also moderately high mountainous districts. We often found zebras in company with ostriches, antelopes, gazelles, and gnus. I have often seen herds of gnus and zebras feeding and drinking peacefully side by side.

Like almost all other animals in virgin countries, the zebra becomes shy and cautious, mainly by being much hunted. The natives hunt the animal for food only, but don't kill it merely for the sake of the sport. It can still be easily hunted by the European traveller and the Askari with their long-range rifles. After a

while, however, it becomes suspicious, shy and very cautious. I always found zebras rather trustful. One of the finest sights one may see is a large herd of these beautiful "tiger-horses" galloping over the steppe.

To estimate the number of zebras in German East Africa is, of course, very hard. Fifty thousand have been mentioned as the maximum number. According to my own calculation, their number amounts to at least several hundred thousand.

The black-and-white striped animals blend remarkably well with the colors of the steppe, so that they are hard to distinguish even at close range. Under certain lights they appear grayish, a phenomenon which may account for the oft-repeated assertion that there are wild asses in German East Africa. The zebras rest at noon, in the shade of trees and high bushes, then the dancing shadows of branches and twigs mingle strangely with their stripes.

Just as the cave-dwellers of old loved to feast on the flesh of wild horses, so the natives of East Africa are passionately fond of the sweet flesh of the zebra, which they prefer to that of any other game.

The zebra is polygamous, a sort of animal Mormon; the strong stallion guards his harem jealously. The blood is, however, sufficiently mixed, because mares join other herds when their lord and master is killed by beasts of prey.

The stallion is not only the lord, but also the pro-

ZEBRA STALLION AND MARE WITH FOAL

tector of his herd. He acts as a sentinel and gives the alarm with a shrill neigh if a beast of prey or a hunter approaches. Then the troop gallops off with a great clatter and in a cloud of dust. The zebra is often also heard to utter a noise like a hoarse bark.

The zebra is exceedingly ferocious, and attacks with its teeth any one approaching sufficiently near, as we may see when we visit the zoological gardens.

Savageness and ferocity are characteristic qualities common to all *equidæ* living in freedom. When the Spanish conquerors brought horses from Europe to the New World, many escaped into the wilderness and produced, in time, immense herds of wild horses. Although they were descended from domesticated ancestors, it proved a hard task to tame them. They had partially relapsed into their original ferocity. The bucking pony has still to be subdued almost daily.

The wild adult horses of the Asiatic high steppe refuse to be tamed even by the experienced native tribes, famous for their horsemanship and their skill in horse-training. Lately, many attempts have been made to tame the zebra, and to make it generally useful. Some claim that it is destined to become a useful "beast of burden" and draught-animal; in fact, to take the place of our horse, which is useless in East Africa, as it succumbs unfailingly to the climate and the tsetse-fly. This is, no doubt, very desirable, but the enthusiasts will hardly live to see their expectations realized. To

GNUS AND ZEBRAS IN COMPANY

tame an animal and to make it serviceable are two different things. To domesticate animals so that they will, like slaves, carry out obediently the command of man is not a matter of a few years but of many generations. We do not know when and how the camels, the cattle, and the horses were completely pressed into man's service, but we can safely assert that it could only have been done by centuries of breeding and training.

No doubt the zebra can be tamed, and may, perhaps, become domesticated in time, but surely not so soon as enthusiasts would have us believe. This in spite of the fact that a few young animals, some born in captivity, have been broken to drive in fancy carts and carriages.

In South Africa zebras have been used for pleasure driving usually hitched together with ponies. But the moment hard and persistent labor was asked of them, as we do of our horses, they lie down and die of "broken hearts."

It is simply Utopian to expect to train and domesticate the beautiful "tiger-horse" in an appreciable time as completely as our horses and asses. Our circus trainers can shed some light on the question of taming and domesticating the zebra. It simply obeys and performs its tricks from the mere fear of the whip, or led by its gregarious instinct when coupled with zebras, ponies, or other animals. But give it a chance of elud-

ZEBRAS APPROACHING THEIR DRINKING-PLACE

ing, for a moment, the watchful control of its trainer, and it may take hours to get it from the arena of the circus into its stall.

The zebra may be made to pull a wagon or carriage when hitched together with ponies. But this is mostly play and not work; it does not and will not exert its full strength, and will not labor until exhausted, as our own horses do.

In addition, the build of the zebra by no means fits it for hard work. The only genuine species of the wild horse, for instance, the *Equus przewalski*, is much better made. All that has so far been accomplished in training the zebra is hardly worth mentioning. It has been taught to perform some tricks in the circus—in which it is outdone by most beasts of prey—and to pull light vehicles.

I have personally some experience in breaking-in refractory horses and in training them as riding and draught horses. To me it is evident that there can be no hope of taming and training the zebra so that it may be used as a draught-animal in German East Africa within a generation or within several generations, and of thus solving the great question of transportation in those parts where the horse and cattle cannot be employed. It would be much more reasonable and promising to train the native ass for hard work. The Wanyamwesi and the Masai ass are patient and can stand the climate. By judicious breeding the latter animal

ZEBRAS SCENTING A LION

could be materially improved in a short time, and be made stronger and more useful.

While I declare, emphatically, that it is a hopeless undertaking to capture zebras, and to press them into service, they have even been talked of as mounts for the colonial troops. I do heartily endorse any scheme calculated to improve the breed so that in some future time the animals may become what they cannot be now—namely, truly domesticated and useful. Private enterprise can achieve much towards furthering this end, but I believe that the government should make it its duty to try the experiment on a large scale. Within historic time man has domesticated but few wild animals—the turkey, for instance. The race of wild horses in Asia will hardly survive; therefore, it is surely worth while to try to add the zebra to the small number of the useful domestic animal friends of man. It will take a long time—generations, no doubt—and the attempt may prove a failure. The possibility of making the attempt, at least, has been assured by Count Goetzen, who put the zebra on the list of wild animals to be protected by the colonial governments of East Africa.

XVIII

LIONS

THERE are, no doubt, as many lions in equatorial Africa as there are in other parts of the "Dark Continent." Yet lions are more rarely met with there and much more difficult to hunt than in other places where horses can live or dogs be used. In Somaliland, for instance, one may scour the wide plain on horseback and pursue the lions until they are brought to bay; in South Africa dogs may be used; in East Africa one has to get along without horses or dogs.

A hunter in tropical East Africa meets lions during the day, mostly by mere chance, and then he has not always his rifle at hand; or he has to watch at night for the passing of the lion, a method which is not very much to my taste. No doubt, one may at night have splendid success shooting from a higher stand or from out a secure thorn thicket. Count Coudenhove, for instance, shot in one night seven lions which were prowling about a dead elephant. His account of this thrilling adventure is, in my opinion, truthful, straightforward, and without embellishment. The count admits, also, that he felt

greatly disconcerted when one lion after another emerged out of the night in front of him. Reading his account, I could fully appreciate his feelings, for I myself have had similar experiences with lions.

I prefer, however, any other manner of hunting the lion to lying in wait for him at night, even catching him in heavy iron-traps. Standing at night for hours, and often in vain, in unhealthy thickets, without rest or sleep, always at a tension which unfits one for the next day's work, one has not always a sure aim in case the lion does appear, since one fires almost at random in the darkness of the night. Hunting the lion in the open, even when he drags the iron-trap by which he may have been caught, is more exciting and satisfactory from a sportsman's point of view.

The lion usually rests during the day under trees and in thickets; he prowls and hunts at night. So it happens that a lion is rarely met with in daytime, and even then he is apt to spy his enemy and to make his escape before the hunter is ready to shoot.

I proved to my own satisfaction, as early as 1896, that lions are found at certain times of the year living together in troops. Probably this has been the case all over the country, North Africa included, before the natives and colonists decimated the lions. Reliable English travellers have found as many as twenty-seven in one troop; the largest troop observed by me numbered seventeen. Two or three lionesses, with their whelps,

are often seen hunting together. One also often finds several male lions together, or a male lion with two lionesses; old lionesses alone, and also solitary old lions. Their grouping depends largely on the season, particularly the pairing season.

Unless the lion be hungry, he rarely attacks human beings. And he need not go hungry in East Africa,

FLOCK OF MARABOUS

which is still rich in wild game. In these parts the natives often follow the lion's track, guided by vultures and marabous, who share his booty by taking what he leaves of the game he has killed.

It is evident from what I have said that it is not easy

to observe and to hunt the lion in tropical Africa; many a well-known explorer has crossed it from coast to coast without even having seen a lion. Of the other wild animals, I have seen, in the daytime, on the open steppe, but one of the striped hyenas, which were discovered by me and named after me, while I succeeded in catching ninety in traps and in photographing a great many at night by the use of the flash-light.

On the other hand, some travellers happened to come across lions in the daytime, as, for instance, the duke of Mecklenburg and Prince Lichtenstein, in British East Africa.

The manes of the East African lions in general do not grow so long or strong as those of the North and South African lions, or of the lions in captivity. The mane is most likely a sexual ornament. Yet there are adult male lions in East Africa—I have killed such myself—who lack every vestige of a mane. Lions born in captivity grow especially long and shaggy manes; in fact, finer specimens have probably been bred in zoological gardens than were ever seen in the wilderness. The favorite prey in countries through which I have travelled seems to be the zebra; the caravan-carriers also find the flesh of the zebra most palatable.

The elephant, rhinoceros, and hippopotamus — very young animals excepted—are beyond the lion's power. His natural prey are the larger antelopes and equine animals, and all small-sized game, although the porcupine

will often make a vigorous and successful defence. Lions often hunt in concert, stalking their prey most skilfully; they communicate with one another by modulated roaring. When watching for game near the drinking-places, the lion will crouch on an elevated point—the steep bank of a brook, for instance—and then rush at his prey with an astounding leap, sometimes of twenty-four feet. The lion is not able to climb trees.

During the dry season lions are apt to concentrate in considerable numbers near the drinking-places. Near the brook where I was most successful in taking flash-light pictures of lions, more than thirty of various sizes and ages had made their lairs, as I could calculate their number by the tracks left by the beasts. They begin to range over the whole country as soon as the rainy season sets in, to follow their game.

I am unable to decide in what proportion the famous French lion hunter, M. Jules Gérard, has mixed truth and fiction in the narrative of his adventures. He killed in North Africa forty lions or more, and was fêted in Algiers like a hero.

No doubt he was a man of rare courage, but also a good deal of a romancer. However fanciful many of his tales may be, he is without doubt right when he says, "Who has never seen an adult lion in the state of freedom may believe in a hand-to-hand fight with this powerful animal; who has seen one knows that an un-

armed man has about as much chance with a lion as a little mouse has in the claws of a cat."

The amount of lying done, consciously and unconsciously, in describing real or imaginary lion-hunts defies refutation. The lion is neither as bad nor as picturesque as he is often painted, and many of the evil deeds, like man-stealing, imputed to him must be charged against other wild beasts, the savage leopard, for instance.

The lion has, in art and literature, been celebrated, from ancient times, as the "king of beasts." The African elephant deserves this title of honor in a much higher degree.

How the lion in the wilderness behaves in the presence of man depends on such a diversity of circumstances and varies so with individuals that it is hard to generalize. He will, as a rule, not attack a man, but when hungry or when brought to bay he may charge on the instant. Certain lions, old ones in particular, will, like the "man-eating" tigers of India, get into the habit of deliberately seeking human flesh.

Lionesses as a rule, and especially when their whelps are with them, are more ready to attack and more dangerous than the male lions. It is always advisable to kill first the lioness and then the lion; she will attack the hunter who fires at her consort. In this she behaves more gallantly than he does; the lion is less self-sacrificing and looks out for his own skin first.

The degree of tamability and education of the captured lions varies very much indeed. Here, too, generalizing would be out of place. The kittens are gentle, playful, and affectionate. Adult lions, also, have been known to be docile, subdued, and even to care for their teachers. Others, though apparently tamed and obedient, can never be fully trusted; fear rather than affection keeps the average lion in subjection. What can be achieved by gentle training has been shown by trainer Haveman in the Berlin zoological gardens.

It happens, in rare cases, that lions will penetrate into human habitations and carry off men.

When the Uganda railroad was building, two engineers slept in a car, the door of which they had left open on account of the heat. The one sleeping on a high couch was suddenly awakened by a noise. To his terror he saw a lion carrying off his comrade, whom the beast had killed. There were at that time forty natives of India killed, who worked on that road. They had been sleeping in the open. No wonder that the neighboring lions acquired a taste for human flesh!

Lions are seldom abroad in daytime, and, when hunting by day, as a rule, run away at the approach of men. They are fearless and daring at night. Even fires do not guarantee absolute safety from the prowling lions. I know of a few cases where natives sleeping by their fires—perhaps only smouldering—were carried off by lions, though my own camp has never been visited by

A STORK'S NEST ON THE STEPPE

them. They came near enough, though. During an intensely dark night a strong male lion almost grazed my tent on his way to the near-by brook; he might have given it a wide berth and still reached the water. After drinking he returned on the same path. He was not in a hurry, either, for the next day I saw, from the tracks he left, that he had tarried about twenty feet from my tent to inspect carefully a large, dry bone. I myself had plenty of opportunity to observe the utter indifference which the lion shows towards man when he hunts his prey at night. He will attack and kill asses or bulls fastened to trees three or four steps from a thicket

in which the hunter is watching for him. This neglect of the lion enabled me not only to observe the royal beast at close range, but also to flash the light of my camera at him and to catch him in the very act. These night-pictures of mine prove, among other things, that the lion does not approach his prey in leaps, but that he, true to his feline nature, adopts stealthy approach before he makes a single dash for it and kills it instantly, biting or breaking its neck.

In 1900 I had the good-fortune to observe a remarkable incident of animal life. I had been following the tracks of some lions for many hours, when suddenly I chanced to come upon an ostrich nest containing a

MALE STORK NEAR THE NEST

number of eggs and also some young birds just hatched. I was astonished to see that the lions had disdained the young ostriches. But a close investigation of the surrounding ground revealed to me the truth. The parent ostriches had, apparently, become aware of the approach of the big felines in time and had decoyed them away from their nest, inducing the lions to follow them on their feigned flight. I noticed from the tracks how the lions, about a hundred paces from the nest, suddenly changed their course and followed the big birds, which they, of course, had no chance to catch. After a while—the impressions of their paws told the tale—the lions gave up the pursuit and continued on their path at a slower gait. Thus the parents had saved their brood.

The lions very seldom hunt in daytime, except, perhaps, during the cooler season of the year. During the heat of day they prefer to rest in the shade of trees or thickets. Even captive lions dislike heat, and show a marked disinclination to perform their tricks in hot weather. The lion can stand cold easily. Some kinds of lions, in Asia for instance, live in high latitudes, although they are not found as far north as is the Siberian tiger, who lives in the midst of snow and ice, protected against the inclemency of the climate by a thick coat of fur. In the time preceding the glacial epoch and during its early stages, lions roamed over all Southern Europe, Germany, France, and the British Isles, and survived in

OSTRICH NEST

many parts—Rumania, Greece, Turkey, the Caucasus—well into historic times.

In East Africa itself lions frequently haunt the high plateaus and mountainous regions, where the nights are often cool enough for ice to form, and whence the roar of the royal beast sounds far into the cold and silent night of the steppe.

XIX

A LION-HUNT

TOWARDS the end of January, 1897, with a small caravan I reached the Kikuyu district. I came from the Victoria-Nyanza, where I had been laid up for months with malaria. That I am alive to tell the tale I owe, above all, to the devotion of two English officers in Fort Mumias, Mr. C. W. Hobley and Mr. Tomkins, who nursed me through that terrible fever. In May, 1896, I had joined a caravan of about four hundred and twenty men, which were starting on a scientific expedition, having marched from the German coast to the Victoria-Nyanza, and traversing on its way districts hitherto unknown and unexplored.

I refrain from describing this interesting expedition, and confine myself to relating to the patient reader an adventure which I had on January 25, 1897, in Kikuyu, on my return to the coast. The invigorating air of this high land had improved me so much that I could not resist the desire to hunt for game. On January 24, I was the guest of Mr. Hall, the commandant of Fort Smith, in Kikuyu, who, in his characteristic English way,

not only entertained me hospitably, but also provided me with food and animals for my farther journey. Our conversation turned naturally to the "big and dangerous game"—elephants, rhinoceroses, buffaloes, lions, and leopards. Mr. Hall, a Nimrod of the old type, had only lately had an encounter with a male rhinoceros, which he had wounded, and which had turned on him and had tossed him three times high up into the air, breaking several of his ribs. Hardly recovered from the effects of this "hazing," Mr. Hall escaped by a hair's-breadth from being mauled by a leopard. The wounded animal had turned on him, and he was only saved by the lucky shot of one of his Askaris. Many scars and a stiff leg attested these exciting experiences, which taught him the lesson never to go out hunting unless accompanied by another courageous and experienced European hunter. He advised me to profit by his experience, in case I intended hunting lions, which, as he told me, were pretty numerous on the "Athiplains," not far from Fort Smith. I accepted the invitation tendered to me by Corporal Ellis to visit him in his camp, five hours' distant from the fort.

I took leave of Mr. Hall. After five hours' march I reached, with my caravan, Corporal Ellis's camp. He had charge of the oxen stabled there by the English government. With him, as guards, were a large number of experienced Askaris. The corporal had killed a big lioness close to his camp a fortnight before my

arrival. We arranged to start on a lion-hunt early the following morning.

We marched across country until we reached the "Mto Nairobi," a small river. There I pitched my

LIONESS ON THE HUNT

camp, disregarding the advice of Corporal Ellis, who warned me against the lions which, as he said, were numerous just in that neighborhood. I was a little sceptical regarding the number of lions.

Corporal Ellis, five of my men, and myself set out to explore the neighborhood of the river. We marched up-

stream alongside the river for some distance and ther retraced our steps. We saw on the plain many gnus, antelopes, Thomson gazelles, zebras, and ostriches.

We were marching slowly along, two of our men walking on the other side of the river, when suddenly we heard the cry: "Simba! Simba! Simba Bwana! Kubwa sana!" (A lion, lord, a mighty lion!) The men on the other side tried to point out to us the animal in a small reed thicket near the water. As soon as the natives who were with me heard the cry from the opposite bank they took to their heels. My rifle-carrier, Ramadan, a stalwart and usually courageous Swahili, was among them. I ran after him and forced him to return with me and to search the reed thicket where the animal was, although invisible to us. Soon we saw the reeds move; something was crawling in the direction where Corporal Ellis stood. A sharp report from his Martini-Henry rifle told us that he had seen the enemy. The animal was only wounded. Roaring with pain and rage, it bounded forward in a mighty leap. To see the head and to fire at it was the work of a moment. A bullet from my rifle killed the cat—it was a big lioness—in the nick of time. We returned to the camp, where our men received us enthusiastically. It took twelve men to carry our prey to the camp; in its stomach we found large pieces of zebra flesh and skin.

After a short breakfast we left the camp again to hunt some game for our dinner. Ellis, who went ahead, was

THREE OLD LIONESSES AT THE BROOK

not very successful. He saw some antelopes, but missed them.

When I followed the corporal about half an hour afterwards, I saw to my right, not so very far off, a gazelle buck. I beckoned to my men to stand still, and tried to stalk the animal. I had approached within about two hundred feet of the buck—my Askaris were about one thousand feet behind me and hidden from me by the unevenness of the ground—when I noticed, three hundred feet or so beyond him, a yellow spot. It was the head of a lion; there was no mistake about it. At the same time I heard, coming from my right, a well-known sound, and, turning around, I saw, about four hundred feet away from me, a big male lion with a blackish mane standing in the grass. My whole attention had been centred on the gazelle, and I was taken quite unawares by the sudden appearance of two lions. This was too much of a good thing for a single hunter. I felt very keenly my helplessness to cope with the two beasts at once. I had but one cartridge in my rifle; if it should be spent without success, the lion might not give me time to reload.

I got ready to fire, keeping my eye on the nearest lion, a male, who in turn did not take his eye off me, standing with head erect, growling low and long. How long did we face each other? It may have been only a few minutes; it seemed an eternity to me. I felt an unspeakable relief when I heard some of my men calling

my name and coming nearer and nearer. I dared not turn my head.

I understood something like, "Simba ile kali sana!" (That lion is ugly!)

I moved backward, always facing the lion, and ready to fire, until I knew that I was near my men. My "Baruti Boy," who held a double-barrelled rifle ready for me, and my other two Askaris, "Baruti bin itus," and Ramadan joined me, but begged me not to fire. I could not restrain myself; I fired, but only grazed the male lion. Reloading quickly, I fired a second bullet at him. He was just turning, and the bullet struck his haunch high up. In pain and rage he whirled around in a circle about twelve times, reaching for the wound. I fired three more shots at him; two reached their aim, and the lion fell with a groan to the ground. He was dead when we got near him.

The other lion had escaped in the mean time. Corporal Ellis, attracted by my shooting, congratulated me most heartily on my "hunter's luck," but chided me at the same time for having engaged two lions without any assistance.

Thus I had killed two lions in one forenoon! The second was a strong, b ack-maned lion whose body was covered by many scars, received, perhaps, in jealous combat for the favors of lionesses. The male lions found on the high plateau of Kikuyu have, as a rule, large and often blackish manes; those in other parts of East Africa

—for instance, in the valley of the Rufu River—are maneless.

My doubts regarding the possible number of lions in this neighborhood were now removed, and two hours before sunset I again left the camp to provide our kitchen with game. I had pretty good luck, killing several Thomson antelopes. Stalking a buck, I had left my native companion far behind me, when suddenly I heard again that now familiar warning growl. Looking in the direction whence it came, I saw first one, then a second, then a third and a fourth lion, all males, the nearest not farther away than one hundred and twenty-five paces. This time my "nerve" forsook me. I slowly retreated, but stopped short when the nearest lion followed in dangerously long leaps. When I halted he, too, checked himself, crouching on the ground. I stood thus for ten minutes, the nervous tension becoming intense. My only hope of escape lay in the speedy arrival of my men—above all, my rifle-bearers. At last I heard their voices, first distant, then nearer and nearer. When they saw me and realized my plight, they stopped and began to tremble for their own lives. My faithful "Baruti Boy" alone dared to come up to me, bringing with him my reserve rifle. The four lions, growling and snarling, standing out from the ground in the light of the setting sun, were a sight, awe-inspiring and yet fascinating beyond comparison.

Since the lions were not scared by the presence of

SKINS OF THE THREE LIONS SHOT JANUARY 25, 1897

several men, I suspected them to be hungry and, therefore, most dangerous. I slowly joined the natives, who were waiting at a distance. In vain I held a long "schawri" (meeting). I could not persuade them to assist me in an attack on the lions. I sent two men to the camp for reinforcements. In the mean time, I induced my men to proceed with me within two hundred paces of the nearest lion, at whom I discharged my rifle. I missed him. The angry beast leaped forward to attack us, but stopped suddenly, roared, turned, and ran in an opposite direction, followed by the three other lions. The four lions were retreating two by two, and I determined to follow them with my men. However fast we went, we did not seem to get nearer to the animals. I made up my mind to have at least a shot at the last, the nearest pair. The distance now was about four hundred paces. I fired. It was a chance shot, but it might prove a hit. The bullet made the earth fly about ten paces behind the lions. One of the lions apparently resented the shot; he stopped, faced us, roared, and beat the ground with his tail. The other lion, too, faced about. A second shot; a third; both were off the mark. At last! The fourth shot proved a hit. The nearest lion, wounded, went for us. After a few leaps, however, he stopped, crouching on the ground, growling with rage.

My blood was up. Against reason and common-sense, I rushed forward alone, fired, and missed. The lion's

blood, too, was aroused, for he bounded forward in mighty leaps. The critical moment was approaching. I bent my right knee to the ground so as to steady myself for the final shot, which might prove my very last one, when suddenly the lion collapsed. Now no time was to be lost. A short, sharp report; the lion rose to leap, but fell back lifeless. I was naturally highly elated over my unexpected success; my blacks were simply beside themselves with joy. We skinned the mighty, black-maned "king of the desert." When we cut him open we found that his stomach was empty; that accounted for his fierceness and daring. When all was over we were joined by the reinforcements from the camp. It took three men to carry the lion's skin.

After a march of over two hours we reached our camp. My men had lost the way in the darkness, a thing which happens to a native only a few times in a lifetime. They crowded up to one another in their fear, like sheep, and I had to march at the head of the procession. We were received with open arms by our men in the camp. The lion's skin was stretched to dry by the camp-fire. Four sentinels guarded the camp that night, for we were apparently encamped in a "lions' plain." The next morning I was rebaptized, as it were, by my native companions. "Bwana Ndegè" (Mr. Bird), they used to call me, because I had been known best as a hunter and collector of birds; now they christened me "Bwana Simba" (Mr. Lion).

I inscribed on the rifle furnished to me by the master gunsmith Reeb, in Bonn, the following words, "Three lions, January 25, 1897." This was the luckiest day I ever had in hunting lions.

XX

FURTHER ADVENTURES WITH LIONS

IN the fall of 1899 I had a most exciting adventure with an old, heavily maned lion on the right bank of the Pangani River. For a few days tracks of lions were found by me near our camp; their roaring, coming from a certain part of the river, broke the stillness of the night. I was very anxious to catch a number of striped hyenas, and had set my traps. An old lion had stepped into one of them and had torn it from its chain. Early in the morning I followed his track, which led through thorny bushes. The trap apparently clung to the lion's foot. Suddenly I heard the low growl of the animal close by; the next moment I saw him running deeper into the thicket, dragging the clattering trap along with him. Several times I got near enough to him, but the thicket prevented me from taking aim accurately, and to shoot at random would have been simply suicidal. I chased the lion for a long time, hoping that he might leave the thicket and make for the sandy and rocky steppe. This he finally did. I took it for granted that he could not escape me. But he managed to free him-

self of the trap. He galloped away, and I had had, so far, my trouble for naught. Yet I refused to acknowledge myself defeated in my purpose. With the help of my Wandorobbo guides I succeeded in tracing the fleeing animal over the sandy and rocky steppe. For

MY FIFTH LIONESS

half an hour we followed the tracks without seeing the lion. At last I saw him ahead of us, running with a limping gait. The trap had weakened his paw. Now he passed a grassless spot and turned his head around to see how near we were to him. This was my chance. I took aim with lightning rapidity, fired, and the lion fell to the

ground with a low groan. For safety's sake I put a second bullet into him. The trophy was well earned. We had been following the animal for six hours and had become thirsty and dead tired. But who is not willing to bear fatigue and thirst and to have his hands and face torn by thorny bushes if his efforts be rewarded as mine were on that lucky day? But I was not always so lucky; more than once I was sorely disappointed. On one occasion I followed the track of a lion which had killed a half-grown zebra at night and was dragging it over the steppe into one of the periodic river-beds to eat it up at its leisure. I reached the high bank and was looking for a place affording an easy descent into the bed of the river, when the animal—it was a lioness—spied me and made her escape.

Another time, in December, 1900, I noticed a number of vultures perched on the branches of a leafless tree. Nearing the place I saw a strong-maned lion. He had scented me and was rapidly trotting across a small clearing at a distance of about four hundred feet. I fired, but missed the animal, who quickened his pace. We tracked him without difficulty, but were led for over two hours in a circle and crosswise over a comparatively small space of ground, catching sight of the lion only now and then, but never having a good opportunity of firing a shot at him. His tracks were criss-crossing one another so bewilderingly that we at last gave up the pursuit.

I was more fortunate another time, on November 10th. I was travelling with my caravan in the steppe, between the Meruberg and the Kilimanjaro, and was nearing a drinking-place. Game of all kind—oryx antelopes, zebras, Grant gazelles, and giraffes—were crossing our path, but I had no intention of hunting them.

As usual I marched at the head of my caravan, closely followed by my guides and rifle-bearers. Suddenly one of my Ndorobbo guides called to me in a subdued voice, "Lungatun!" and pointed towards a grassy spot on our left. The black guide and I advanced only to see two lions, a male and female, galloping away at great speed and disappearing in a thorny thicket which lay between us and a high elevation on our left. We penetrated into the thicket and had climbed up the rocky ground, when I saw, directly in front of me, not more than fifteen paces distant, a magnificent lioness facing me fully and fastening her glowing eyes on me. An indescribably beautiful sight! Instinctively, I looked for the other lion; then I took aim. The same moment the lioness leaped to one side, high up, and disappeared in the thicket. I had shot at her while she was leaping and I was anxiously awaiting developments. She might return and attack me in case I had only wounded her. My shot, however, proved a splendid hit; we found the lioness dead in the thicket. The lion had disappeared in the mean time.

Likewise, in 1900, I had a thrilling adventure with

LIONESS SPRINGING ON AN ASS

three lions which might have easily proved fatal to me. My caravan had reached the foot of a mountain after a march of ten hours over the dry steppe. My men, tired and thirsty, had pitched the camp. I left the camp to explore the neighborhood armed only with a shot-gun. I went along a small brook, down-stream, for about three thousand feet when I suddenly noticed tracks of lions. Involuntarily, I followed them and was just about to descend into the dried-up bed of a periodic stream—it was then the height of the dry season—when I saw, on my left, a lioness not more than eighty feet away from where I stood. The same moment I observed two other lions moving along partly hidden in the grass.

I stood still as if rooted to the ground. I was entirely at the mercy of the animals, for my shot-gun was of no use to me in this emergency. The situation was more than critical; it was desperate. For a few seconds—they seemed eternity to me—man and felines eyed one another. The lioness advanced to the edge of the steep bank, looked at me a moment, faced about, and trotted towards the thicket followed by the other lions. I dared not move until the animals had disappeared from my sight, then with a mighty sigh of relief I started on my retreat to the camp. I returned with my rifle, accompanied by some natives, but we could not trace the lions. I placed, however, some traps where I had seen them first, fastening an ass, as bait, to a near-by tree. Next morning I found one of the traps gone. It had

apparently been torn from its chain by a trapped animal whose track led into the thorny thicket. I followed it and traced it to a powerful lion who had penetrated about three thousand feet into the thicket. I meant to snap my camera at him, but had to drop it and take up my rifle to ward off the animal who, in spite of the heavy iron-trap clinging to his paw, attacked me vigorously. A well-aimed shot stretched him to the ground almost at my feet. The next night we trapped two more lions; after that the traps remained empty. I have reason to believe that the three lions thus caught were the same with which I had had that memorable tête-à-tête on the bank of the dry river-bed.

Never to be forgotten by me are the hours which I spent in 1899 following the track of fourteen lions. I had never before met such a number of lions in one troop. The impressions made by the mighty paws of the animals were clearly defined in the fine dust which covered the dry ground of the steppe, an expressive writing for the well-trained eye of the hunter. There is a strange fascination in following the traces of wild beasts into the vastnesses of the steppe; in the case of my tracking the fourteen lions this eagerness was alloyed with a goodly amount of anxiety. One's imagination loves to picture the possible situations which the pursuit of the beasts may bring about. So did mine on that occasion. Having reached the top of a hill, I saw the lions resting among the rocks in the shade of some locust-trees.

But, alas! —or should I not rather say fortunately?— the animals withdrew from sight as soon as they had become aware of me. I often had to register similar experiences that the lions were so near and yet too far. The worst stroke of ill-luck, from a hunter's point of view, I had was when I failed to kill the strongest-maned lion I ever met with in the wilderness. One day, while stalking water-bucks, I saw an animal hiding in the bushes. Soon I made it out to be a maned lion of unusual size. He had scented me and galloped away before I could take good aim. The bullet I sent after him did not miss him quite, as I could see from the bloody trail. I followed it for a distance, but without being able to overtake the wounded beast. My men found the carcass of a big lion a fortnight later not far from where I had wounded the lion. He had worked his way into the heart of a thicket so that even the vultures could not get at him. The flesh was almost completely eaten up by maggots. I could only save the skull, the biggest in my collection. The defective teeth showed me that the lion was well on in years.

All in all, I caught thirty-seven lions in traps made by Rudolf Weber. A few strong beasts had dragged the sixty pounds of iron for long distances an hour or more. The asses and cattle which I used as bait had all been stung by the poisonous tsetse-fly. The quick bite of the felines simply shortened their otherwise slow and painful death. The trapped and runaway lions had often

forced their way so deep into the thickets of reeds and grass and thorny bushes that I had to climb neighboring trees so as to get a shot at them.

Once I caught in traps a whole family consisting of three lionesses and six almost full-grown whelps. The

YOUNG LION CAPTURED BY MR. ORGEICH

first night three were caught, the second night four, and the third night two.

All the older lions had managed to drag themselves and the heavy traps some distance into the reed thickets of the swamp. One of my men almost stepped on a big lioness; she had given him no sign of warning. He took

to his heels and stopped only when he was safe within the camp. Some of the Wanyamwesi tribes feed on the flesh of lions. They believe that it imparts to them strength and courage. The nine lions caught by me during those three nights were consequently duly buried in the stomachs of my Wanyamwesi men. After the seventh lion had been thus disposed of, their leader declared that they were tired of these "delicatessen" and longed for ordinary game—an African case of *toujours perdrix!*

I had often wished to bring adult lions, caught in the wilderness, to Europe, and the managers of the Berlin zoological gardens had placed portable cages at my disposal. But I could not carry out my intention, since it was impossible to transport by carriers, from the depths of the wilderness to the coast, animals weighing up to five hundred pounds in cages of three hundred pounds.

The Romans stocked their cages with adult animals caught in the wilderness, though, on the other hand, a great number of the multitude of animals needed for the arena were, no doubt, bred and raised in captivity.

The lions in our menageries and zoological gardens claimed to be "forest-bred" were captured young and grew up in captivity.

A lion born in the wilderness but full-grown in captivity can give to the visitor of zoological gardens only a faint idea of what the "king of the desert" really is in a state of liberty, ruling the free, great, wild steppe.

AS THE LIONESS KILLED THE OX THE LION PREPARED TO LEAP

I can fully understand the religious feeling which filled Goethe's mind whenever he contemplated the marvels of nature. My mind, too, "felt devoutly humble" when I stood in the wilderness face to face with the powerful beasts of prey, and my soul was filled with awe and admiration as deep and as great as that which comes over us when we are tossed about by a storm on the high sea or when we are subjected to the fury of a tropical thunder-storm.

XXI

THE LEOPARD

THE leopard is, no doubt, the most dangerous and most formidable beast of prey in East Africa. It is ubiquitous, "everywhere and nowhere," much more so than the lion. Leopards are often hunted and killed by lions.

In spite of its strikingly colored and spotted fur, the leopard becomes often so completely one with its surroundings that it may be easily overlooked even when one is on the lookout for it and passes it at close range.

The leopard has no decided preference for any special locality; its haunts may be found anywhere, on rocky ground as well as in wooded districts—in fact, wherever it finds sufficient cover.

It easily climbs trees, and often hides during a hot day in their shady tops. To my personal knowledge men were jumped on and killed by beasts concealed in the foliage—as in the case of a negro, for instance, who was about to climb a mango-tree.

The lightning-like rapidity with which a leopard moves, charging or running away, defies description.

Although these animals are found in abundance, they are seldom met with by hunters, as they are cunning and sneaky. According to my diary, I encountered and hunted the dangerous cat only twelve times, but the meetings were as exciting as any I had with the wild beasts of the wilderness. This number does not include the leopards which I caught in traps.

One of the most blood-stirring adventures I had with a leopard was near Pangani, when I set out on my journey into the interior in 1899. I had gone back to town, accompanied by but one man, in order to engage more carriers. Returning towards evening to my camp, my attention was drawn to a tree on which a crowd of baboons were shrieking with all their might. Since monkeys are preyed on by the leopard, I concluded that the baboons were directing their wrath against one of the stealthy cats in a near-by thicket. I penetrated a few feet into the jungle, when something ahead of me began to move, while the monkeys followed it in the tops of the trees.— The thicket grew less dense, and I soon found myself on the edge of a ravine, when I saw, about ninety feet away, a strong leopard dragging along a half-grown baboon. I raised my rifle, but before I could fire the beast had dropped the monkey and escaped with a mighty leap into the ravine. I was sorry to be forced to desist from pursuing it, but I had to return to my camp.

I chanced several times to come upon the haunts of

SPOTTED HYENA AND ASS

leopards unawares when looking for them in the high grass of the steppe.

Once I almost stepped on a leopard which ran from out the grass in front of me, so close that I was too frightened to fire. When I did fire, I missed; a second shot wounded the animal slightly.

It is very hard to hit a fleeing leopard; it surely is better for the hunter to miss the beast than merely to wound it. A wounded leopard is a most dangerous enemy when it turns and charges the hunter; its movements, quick as lightning, hardly allow one to take aim. Although I knew this from personal experience, and although I had made up my mind to shoot leopards only under favorable conditions, I always yielded to the temptation whenever I got a chance to shoot.

On one occasion my foolhardiness brought me within an inch of losing my life. I noticed in the sand of the steppe the tracks of a leopard dragging its prey. They led me to the high bank of a ravine washed out by rain. I went all around it and found that the animal had not left it. Soon I made out the leopard lying with its prey, a small antelope, in a hole under the roots of a tree. But the beast had noticed me also. Leaving its prey behind, the leopard tried to steal away; at the same moment I fired. A trail of blood proved that I had hit the animal but not killed it. Going along the high and steep embankment, I noticed the beast cowering, half hidden by the roots of a tree.

MALE LEOPARD AT DRINKING-POOL

The distance between us was about seventy-five feet. What happened now was enacted much more quickly than it takes time to describe it.

At the same moment that I raised my rifle to fire a telling shot, the leopard leaped towards me quick as a flash of lightning. I saw the beast clawing the edge of the ravine and almost touching my feet, and felt that there was no escape possible, and no defence either, when the leopard jumped back into the ravine as quickly as it had attacked me. The sight of my two native companions, who put in an appearance near me just at that moment, apparently had scared the animal as much as its sudden sight had staggered my men. Although I did not lose my presence of mind, I did not have time enough to raise my rifle and to shoot; it all happened in a few seconds. A few minutes later a well-aimed shot freed us of all further danger.

Never shall I forget this experience; I can even now hear the short snarls of the infuriated beast. I was saved through no skill or bravery of mine, but by mere luck.

Other hunters have had similar experiences, some even more thrilling and marvellous escapes than mine. Mr. Hall, my host at Fort Smith, in Kikuyu, told me the most blood-curdling story of adventure I ever listened to. He had just recovered from the consequences of an encounter with a rhinoceros. He was such an inveterate hunter that, although he had not

yet fully recovered his health, he went out stalking impallah antelopes accompanied by an Askari. He met a leopard apparently bent on the same errand. Mr. Hall fired at his competitor, but only wounded the beast. Quick as lightning the leopard was upon the hunter, burying its claws in his flesh. A shot fired by the courageous Askari freed his master of the beast. Mr. Hall was laid up again, but soon recovered. As a lasting memento of this narrow escape, he has a stiff leg, the sinews of which were torn by the leopard.

Twice more I was about to be attacked by wounded leopards, but killed them before they got too near.

The natives claim that the leopard is a "man-eater." Old male leopards may become "man-eaters" when once they have discovered how easy it is to secure human victims, but leopards generally do not indulge in stealing and eating human beings. Occasionally, however, they do attack them, chiefly women and children. Mr. von Gordon, who travelled in East Africa a few years ago, together with his brother and the late Mr. von Tippelskirch, related to me a very interesting incident.

They were sitting, one evening, at the camp-fire smoking, when a fox-terrier, resting only a few feet away from them, suddenly uttered a low cry and disappeared from sight. A leopard had snatched him away. A general hullabaloo ensued, shouting and shooting, but to no avail. The dog was gone for good. Although the guards were, after this occurrence, more than usu-

ally watchful, the beast returned the very next night, seized a negress, and carried her about two hundred and fifty feet, but dropped her when the guards fired at it. The woman was picked up dead, her throat having been bitten through and through.

The food of the leopard consists of any mammals it can overpower. Its favorite diet are monkeys, smaller antelopes, gazelles, and, in mountainous districts, also dassies (*Procavia*). It hunts its prey preferably at night, when the antelopes visit their drinking-places and the monkeys sleep on steep rocks and in trees. The unceasing bleating of antelopes and the intense shrieking of monkeys always indicate that their enemy is attacking them. The big baboons, however, are well able to offer a stout resistance, for their incisors are as sharp and longer than those of the leopard.

The leopard is more bloodthirsty, ferocious, cunning, and destructive than the lion, whose character is really "noble" compared with the stealthy, tricky ways of the former. The cry of the leopard is a hoarse grunt. It sometimes also sounds like a snarl. I have heard it not only at night, but also in the afternoon.

A great many writers on wild animals claim that the leopard disdains carrion and prefers live game, the blood of which it loves to drink. This fallacious statement has almost become an axiom, and is freely copied by compilers of natural histories.

I have caught about forty leopards in traps which

MR. ORGEICH WITH NEGRO SERVANTS

were baited with carrion. Near these traps were others, in the neighborhood of which live animals—goats and asses — were fastened to trees as bait for lions. The leopards almost invariably preferred the carrion. My method of baiting for the leopard was based on close observation of the habits of the beast. The leopard very often does not eat up its prey completely. It first eats the heart and liver. The parts left over it places up in a tree-fork, often very high above the ground. This peculiarity of the leopard frequently furnishes other members of its kind food which they will not reject even in a putrid condition.

Leopards are therefore best caught in traps baited with carrion. I have learned that my method has been adopted by many hunters who heard of it from my former carriers. Whenever I caught a leopardess I could count on catching her mate on one of the following nights.

I have killed leopards which weighed one hundred and forty-five pounds; the females weigh considerably less.

Even a trapped leopard is very dangerous, and must be approached cautiously. Should it succeed in freeing itself, it would no doubt attack the hunter.

If the trap is fastened to a tree, the captive will climb up the trunk as far as the chain permits; if it be anchored in the ground by means of a big stick, the beast is apt to uproot it and may escape.

THE LEOPARD

At one time, in 1902, an animal, which proved to be a strong adult leopard, had been caught in a trap near the Pangani River, and had made its escape, dragging trap, chain, and anchor after it into a reed thicket. Captain Merker and I, with a few courageous natives, entered the thicket, the natives pushing the reeds aside with long poles, and the captain and I on the *qui vive* with cocked rifles.

The heat in the thicket was almost suffocating, and we made slow headway. Suddenly we heard the rattling of iron and a deep growl. The animal could not be far from us; but where? The dry, hard ground did not show any traces of it. For some time we advanced, guided only by the noise of chain and animal. We thought for a while it might be a lion, and the natives with us were absolutely certain they had seen glimpses of a maned lion. At last we decided to give up the pursuit. We did not seem to get any nearer to the growling beast, and the thicket did not grow less dense. We fired, however, at random in the direction from where the sounds came. We spent a great deal of ammunition, not knowing whether any of our shots took effect. After a while the growling stopped, and we ceased firing. Had the animal escaped out of hearing or was it killed by a chance shot? Again we proceeded, with the help of our natives, who beat down the reeds while Captain Merker and I followed. Advancing inch by inch, slowly but surely, we came to a

bowl-like depression in the ground, apparently made by hippopotami, and in it lay our fugitive, a fine specimen of an adult leopard. This hunting adventure taught me, among other things, not to place too much faith in statements made by natives. Our men were absolutely sure that the animal we pursued was a lion, and a thickly maned one at that.

I cannot say anything about the hunting-leopard (*Cynælurus guttatus*, Herm.) from my own experience. It is a rare animal in the Masai land, and I caught sight of only two specimens.

But the cunning leopard, called "chin" by the Waswahili, "ol ugaru geri" by the Masai, and "mellilta" by the Wandorobbo, roves in untold numbers nightly over the vast Nyika, and will do so long after the strong lion has ceased to exist.

XXII

HUNTING-DOGS, LYNXES, CATS, AND OTHERS

ONE of the most vivid recollections of scenes from animal life in Africa, which crowd my memory, is that of the fleet hunting-dogs chasing their prey. Like phantoms they appeared in the wild steppe, near the paths of caravans, near the coast, and in the reed thickets of the rivers, running after their prey in long leaps, three or four, on its very heels, others beside and behind to intercept it should the victim turn their way. Like a flash they came and went before one had time to recover from the surprise.

I met with the wild dog (*Lycaon pictus*) but rarely in the parts of German East Africa through which I travelled. I am told that it is just as rare an animal in British East Africa. The wild honde, as the Dutch call the hunting-dog, preys on all kinds of game, even the larger antelopes. Near the railroad station, Korrogave, I saw a few chasing a water-buck. Once I observed a pack of fourteen galloping behind an eland antelope.

Another time, in 1899, when following the tracks of

a wounded bull eland antelope, I chanced to come on a pack of hunting-dogs resting in the shade of an acacia. The dogs scattered in all directions, but soon gathered again and barked at me.

Their barking sounded like, "Wa wau wau, wa wau, wa wau," uttered in regular, short cadences by all the

PRINCE LOEWENSTEIN'S CAMP

dogs in unison, while they alternately approached and retreated in the manner of shy, tame dogs. I was so fascinated by this sight that I refrained from shooting and kept absolutely quiet. After they had kept up this play for about ten minutes, some of the dogs whose curiosity seemed to be satisfied sneaked away. Not to lose my chance, I fired with my double-barrelled rifle and secured two specimens; the rest fled with lightning-like speed.

We can easily judge of their speed by comparison. J. G. Millais tells us, in *A Breath from the Veldt*, that in

HYENA DRAGGING THE BODY OF A DEAD ASS

the good old time a well-mounted hunter could ride down a roan antelope after four miles, a water-buck after three, an old bull koodoo after two miles, but rarely ever a sable antelope and a gnu. All these animals are hunted by the wild dog (*Lycaon pictus*).

The wild dogs follow their prey by scent, not by their tracks; they also attack them at sight. Big antelopes they bring down by jumping at their bellies and tearing out their entrails, as I had twice occasion to observe.

Although their coat is many-colored, the wild dogs, at a certain distance, look merely dark; they therefore do not blend with their surroundings, but stand out from them. Since they are fleet to escape and quick to attack at sight, they are not so much in need of keeping out of sight of their enemies or their prey.

The *Lycaon pictus* is not numerous in the Masai districts. Once I found, at noon, five dogs, another time two resting in the shade of bushes. On another occasion I happened to come upon a pack of them chasing and catching a giraffe gazelle (*Lithocranius walleri*). The rareness of the hunting-dog can easily be accounted for by the comparative scarceness of the game.

The wild hondc is extraordinarily fierce in captivity, prone to bite, and shows a marked dislike to our tame dogs. I do not think that breeding the wild dog with the tame will produce an animal which would be of use to the hunter in tropical East Africa, however

THE FOREST ON THE PANGANI RIVER

interesting it might be from a scientific point of view.

Among the other smaller beasts of prey we find a number of wild-cats and lynxes. Still more abundant than the leopard is the serval (*Felis serval Schreb*), a feline, the yellow fur of which is covered with black spots. This wild-cat appears to frequent long grass, reeds, and bushes, especially in the neighborhood of small streams and rivers. It is strictly nocturnal in its habits. I met it very seldom in the daytime—and then only by chance — while I caught a great number in traps, among them a much-desired, completely black variety.

While hunting elephants on the western side of the Kilimanjaro, I saw, again and again, a shy black cat. From my stand I could often see it far below me jumping gracefully over the dew-laden grasses and the branches which blocked its way; but before I could take aim it always disappeared into the thicket. For many nights it avoided the traps I set to catch it. One morning, however, my taxidermist surprised me with the welcome news, "We have got her." Saying this he held out to me a fine melanistic serval. She appeared to be uniformly black, but, holding her against the light, I could see the darker spots shining through. Next morning we found in the same trap a normally colored male serval, her mate, no doubt. It had long been my wish to catch a black serval; at last it was fulfilled.

During the days which I spent in the mountain wilderness watching the elephants, I was in closer communion with nature, which is there both wild and beautiful. From my high stand, way up in the solitude of the cloud-covered world of mountains, I daily looked for hours into the broad valleys filled with a luxuriant vegetation, spying with my field-glass for the giant mammals and other animals, the solemn stillness broken only now and then by the cries of birds or beasts. It was a unique scene, grand and poetic, a picture of prehistoric times: before me in gloomy majesty the glacier world of the gigantic volcano, deep down in the valley elephants and giraffes reaching into our time like the ruins of a by-gone age. . . !

On the plains of the steppe I met, though very rarely, the gray wild-cat (*Felis aff. lybica*). In all I shot four specimens and caught a few more in traps. It resembles very much our own cat—is long-tailed and shy.

I happened also to come across the East African representative of the lynx family, the caracal (*Caracal nubicus*), several times. Once I was watching pygmy antelopes (*Madogua kirki*) when I saw, not more than sixty feet from me, a lynx looking out for the same game. It is a rare chance to meet this animal in daytime, for it comes out of the bush chiefly at night. I did not mean to let my chance slip and shot it on the spot.

Another time, in March, I was still more fortunate.

SPOTTED HYENAS AND JACKALS

Not far from my camp I had noticed about sixty-four ostriches. As they were moulting, I merely observed them with my field-glass. One day, however, I could not resist the temptation, and decided to shoot a male bird, which I meant to present to the royal museum in Berlin. I singled out one, and, approaching within six hundred feet, fired. The bird flapped its wings and fell. The same moment something began to move within the bush which served me as cover. I was startled and also considerably scared, for I thought I had disturbed the most dangerous of felines, a leopard, in its lair. It was, however, a lynx which tried to escape, but which fell a victim to the second bullet of my double-barrelled rifle. This was luck, indeed, a fine double shot, an ostrich and a lynx!

No doubt the *Caracal nubicus* is comparatively rare in East Africa, rarer at all events than in the North and South.

The genets, small and slender felines, are also but rarely met with in the daytime. I found and shot one hiding in a strange place — namely, under the eaves of the house of a Greek merchant in Moschi. Near the Kilimanjaro I discovered some black specimens of these small felines.

All these small beasts of prey, like the genet, the civet, the ratel, the mongoose, and others, are seldom seen abroad in the daytime, as their habits are nocturnal.

I have seen only two specimens of the fish-otter near the Kingani; near the Victoria Lake I could secure furs only from the natives.

All these comparatively small beasts easily escape our notice in the wilderness of Africa, and this is not

THE LAFITTE HILLS

to be wondered at. To meet them all and study their ways is the task of a lifetime. In our own well-populated country, we do not find it easy to get even a passing glimpse of the marten, the iltis, the wild-cat, the otter, and the fox. In Africa their cousins may be more numerous, but then they have a large field and inaccessible hiding-places.

XXIII

EARTH-HOGS, PORCUPINES, WILD HOGS, AND SMALLER MAMMALS

THE traveller never sees two of the strangest inhabitants of the steppe, the earth-hog (*Orycteropus wertheri*) and the porcupine (*Hystrix Africæ-Australis*), unless he takes the trouble to dig for them, or is favored by good-fortune.

Mr. Jackson, who can speak with authority on the African fauna, said laconically, when discussing with me the porcupine, "Never seen," and yet he had spent ten years in East Africa studying the life of the wild animals.

The explanation is a simple one. The habits of the porcupine are absolutely nocturnal. It spends the day in caves in the earth, from which it only issues at night, and into which it retreats before dawn. I found plenty of quills, but never saw the animal itself at large. A few specimens I secured from natives, who had dug them out of their burrows.

During the rainy season the high and extraordinarily large termite-hills are visited at night by a strange

animal which spends its days underground. It is a grotesquely formed creature; it has, as Professor Matschie says, the snout of a pig, the head of an ant-bear, the ears of an ass, the legs of an armadillo, and the body of a kangaroo—a kind of a composite animal such as the imagination of fanciful artists, painters, and writers may conceive. With its long tail and its sharp claws, it beats and tears to pieces the ant-hills, and with its long and sticky tongue it collects myriads of ants and swallows them.

I was very anxious to take flash-light pictures of this strange animal, but soon gave up all hope of success. During the dry season the "aard-vark," as the Dutch colonists call the earth-hog, sleeps in the remote recesses of its ramified burrow, and it is impossible to capture it there by trapping it or digging for it. Only during the wet nights of the rainy season does it issue into the steppe to feed on termites.

The earths or burrows, which are often very deep and wide-spreading, are a constant danger to hunters, as the openings are frequently concealed beneath bushes and are then difficult to avoid. Often I suddenly felt myself sinking into the ground up to my waist.

I never succeeded in even seeing the earth-hog in a state of liberty, but I acquired a few skins and skeletons from the natives and brought them to Germany, where there were only a few mounted specimens. Captain

Waldemar Werthor had been the first to furnish specimens of this animal.

Twice only I saw in the steppe the beautiful black-and-white ratel (*Mellivora ratel Sparrm.*), which is very rarely met with, as its habits are nocturnal. It is easily caught in traps baited with carrion.

Now and then one meets in the steppe a fleet, slender, foxlike animal with enormous ears, the *Otocyon megalotis Desm.* It is nocturnal in its habits, and feeds chiefly on insects, beetles and termites furnishing the bulk of its nourishment. Once, in July, I noticed a whole family, about ten in all, near one of their subterranean habitations.

Every traveller who is at all observant cannot fail to meet in the Masai steppe, graceful, marten-like animals, the mongoose (*Herpestes*). There are several species of them, different in color and size, varying from a good-sized weasel to a full-grown cat. They are often found living in ant-hills together with the ground-squirrels. The mongoose is social in its habits, and often herds of these animals ravage the steppe, devouring everything eatable, plants as well as animals. In its rapid movements a string of mongoose often resembles a big, moving snake. To watch these agile animals affords a great deal of amusement. When they suspect danger they all run for home, that is, the termite-hill, and keep in hiding for hours. But by-and-by, first one, then a second, and finally, all poke their noses out

of their little holes, venture out of and about their stronghold, leaping and skipping, running in and out as if playing hide-and-seek.

The ground-squirrel, living singly or in pairs, often chooses the termite-hills for its habitation, but usually lives in burrows under the ground. In their company, and in that of the mongoose, the dassy (*Procavia*), too, is found as an inhabitant of the ant-hills, although its true habitats are the rocky hills and mountains. The dassy lives during the rainy season at the foot of the mountains, often in large families in the crannies and cracks in the rocks, and during the dry season climbs up to the high plateaus and the mountains. This small animal, together with the *Dendrohyrax*, the tree-dassy, is the nearest relation of the bulky rhinoceros, a fact which no doubt astonishes the layman.

There are three species of rock-dassies and two of tree-dassies found in German East Africa, and the presence of these pygmy ungulates enlivens the virgin forests and the rocky deserts. They are exceedingly shy, and remind one in many ways of the marmots.

The peculiar cry and the burring noise of the tree-dassy can often be heard in the forests of the Kilimanjaro. In the early evening, after the camp-fires are lit, we can see them running about in the trees like woodland sprites, and all night we can hear their clucking noise in the branches of the beroelia and ster-

CAMP ON THE PANGANI RIVER

kulia trees, until the doot, doot, doot—doo, doo, doo; loot, doot—doo, doo, of the "tippu-tippu" (*Centrophus superciliosus*) announces the break of day. One sees the tree-dassies often also in the daytime.

The solemn virgin forests, through the thick foliage of which the sunlight barely penetrates, is not devoid of animal life. In the twilight of the woods we see suddenly rise before us the beautiful *Francolinus* bird. Warned by its cry, the rabbit-like animals run up the trunks of the primeval *Juniperus procera* and other gigantic trees to disappear in the holes and cracks of the big branches. They are tree-dassies, the "peléle" of the natives, who hunt these animals to gain their soft fur which they work into cloaks, or sell to the European traders in order to be able to pay the hut-taxes levied by the colonial government. In order to pay the taxes the natives are often forced to kill game far beyond their personal need. They also hunt the animals of the wilderness in the employ of European merchants, who carry on a profitable trade in furs and skins.

To what extent skins are made an article of trade, I had occasion to observe in the great emporiums of Aden and Marseilles, where I saw thousands of bales consisting of antelope-skins forming part of the cargo of the big steamers. The English government has somewhat restricted the trade in antelope-horns, by putting a heavy export tax on them, but hundreds of thousands of ante-

JACKAL ABOUT TO DRINK

lope-skins are exported unchecked, fraudulently declared as cattle-hides.

The interests of commerce and the laws for the protection of wild game clash irreconcilably. The small furs of the "peléle" and of certain monkeys have also become articles of trade, and the number of these harmless animals is decreasing correspondingly with the demand for their skins. It is thus the merchant, not the sportsman and collector, who is responsible for the devastations wrought in the fauna of Africa. Even the mere hunter does not kill simply to kill, but for the sport of it. His trophies hardly count when compared with the results of systematic slaughter perpetrated in the name of commerce, of progress, and civilization.

While North Africa, the coast lands of which zoogeographically belong to the Mediterranean zone, is the home of a wild hog resembling our own wild, black hogs, in the countries south of the Sahara are found several other species of wild hogs, one near rivers and in the more settled parts of East Africa, another in the vast Masai districts. The latter, the wart-hog, is phenomenally ugly, as its name implies, having a number of big warts and cutaneous protuberances about its head. The wart-hog (*Phacochœrus Æthiopicus*) is not uncommon near the Kilimanjaro. To hunt a strong, full-grown boar is both exciting and profitable to a plucky sportsman, for his tusks are valuable trophies. The wild hog does a great deal of damage to plantations and fields,

rooting and eating the fruits at night-time. It can often also be seen in the open plains digging with its long tusks for edible roots.

While its eyes are weak, its hearing and sense of smell are keen. Old boars fleeing through the high grass or through thickets have often been mistaken for lions by my natives. The bristles on their back, often over twelve inches long, seen from a distance, really suggest a lion's mane.

The wart-hog is usually found in the open country, and never very far from water, but sometimes it will also make its home in the burrows of the "aard-vark," several often inhabiting the same burrow. Wounded wart-hogs are apt to turn on the hunters and may become dangerous, their lower tushes being provided with edges. The wart-hog is, as a rule, seen in small families, and manages very well to keep out of sight of pursuers. Our own wild hogs have succeeded in surviving constant hunting in densely settled countries, and there is no reason why the wild hogs of Africa should not have a long lease of life.

While I am writing these lines I am informed of the discovery of a species of the wild hog hitherto unknown in East Africa, which may be classed between the two kinds I have mentioned.

This goes to show how little known the fauna of the "Dark Continent" still is to us.

XXIV

HYENAS AND JACKALS

WHILE the striped hyena is found only in certain localities in East Africa, the spotted species (*Hyæna crocuta*) is generally in evidence. Together with the vultures and marabous, the hyenas are the scavengers of this vast country; as a rule they do away with the carcasses of the big mammals, and also with the dead human bodies, before the process of decay has a chance to start.

The hyenas roam over the length and breadth of Africa south of the Sahara, following the other animals as they change their habitat according to the seasons. Their presence can also be counted on wherever human beings fall victims to famine or war. They also frequently treat themselves to the remnants of game left by the big beasts of prey, the lion and the leopard; the "fissi" are very keen in scenting these leavings. The hyenas are marvellously quick in disposing of the biggest carcasses; their appetite is simply boundless. They gulp down large pieces of flesh and big bones, which they grind with their strong teeth.

Their habits are nocturnal. They dislike the heat of the day, and cannot stand it well, as I had occasion to observe when I took some with me on my return to the coast; they could hardly keep pace with the caravan on its march through the sunny steppe. On cloudy

VULTURES NEAR THE CAMP

days they may be seen abroad even in the late afternoon, but commonly they spend the day in the shade of bushes, in holes, caves, and under rocks, sallying forth only at night singly, in pairs, or in small troops in search of food.

Several times in the spring I found young hyenas in litters of three or four. The old hyenas bring part of

their food to their holes for the young. This food is often shared by vultures of different kinds, who fearlessly walk among the old and young hyenas, as if they belonged to the family. It is, indeed, remarkable to see, as I often have seen in the daytime, hyenas, jackals, and hundreds of vultures and marabous assembled about the carcass of big animals without fear of one another, each bent on getting its fill of carrion. The jackals and hyenas attack the belly and eat their way into its cavity. Once I saw five hyenas running out of the body of a dead elephant which had been killed by a professional hunter.

I have often heard their hideous howl as they prowled around my camp at night-time. They frequently ventured within to carry off meat and whatever they could seize—skins, pieces of leather, etc.

My pictures of hyenas, taken at night, show how greedily they seize upon carrion bait. Their strength is remarkable, as is proven by my picture depicting a spotted hyena taking hold of and dragging away a dead ass. R. Boehm tells us that he has seen hyenas carrying off the dead bodies of human beings. Remarkable are the cunning and the cowardice of the hyena, making it very difficult to kill or to photograph the animal by baiting for it. Its senses of scent and hearing are so acute that it will not approach carrion until reasonably sure that no enemy is hiding near by.

The body, shoulders, and haunches of the young

HYÆNA SCHILLINGSI MTSCH

hyena are covered with spots of a dark color varying considerably in arrangement and distinctness, and the older the animals grow the more uniform the coloring becomes. One often finds mangy specimens.

The behavior of the "fissi" of the Waswahili, "iwiti" of the Wanyamwesi, "ol egodjine" of the Masai, and "arvijet" of the Wandorobbo is different in various localities and under other circumstances. In one place it is shy and is satisfied with carrion and leavings, in another it is daring and attacks and carries off animals and young children. I have lost in this way quite a few asses, especially on dark, rainy nights.

Up to 1899 it was a mooted question whether any striped hyenas (*Hyæna striata*) existed in British and German East Africa. Even Professor Matschie was of the opinion that if there did exist a striped variety in these parts it must be a new species, different from the *Hyæna striata* of the other parts of Africa. Oscar Neumann, the well-known zoologist, who spent three years in East Africa, believed that the spotted hyena could be found there only.

One evening, in the fall of 1896, while camping on the shore of the natron lake between the Kilimanjaro and the Victoria Nyanza, I baited a trap with a heron. The next morning we found a striped hyena caught in the iron. Alfred Kaiser, who had lived for years near the Sinai mountain, immediately declared that it was identical with the Arabian striped hyena.

JACKALS

How it differed from it in minor points we could not determine then and there, because we had no Arabian specimens for comparison. I could not send the animal to Europe, and my claim to have found the *Hyæna striata* represented in East Africa was not considered as fully established.

It was declared that the absolute scientific proof was still lacking. I then baited my traps systematically for this species, and I succeeded in collecting sixty-six skins and skulls, and also some complete skeletons, and despatched them to Europe. All doubts and objections were now removed. I was overjoyed when a letter from Professor Matschie informed me that this hyena had been classified as *Hyæna Schillingsi Mtsch.* All this goes to show how difficult it is to investigate the fauna of a new country, and to prove beyond a reasonable doubt the existence of many new species. One might think that this should have been easy with an animal like the hyena, which goes out hunting every night, and which was apparently well known to natives. But to believe there is, and to prove there is, such and such a species in a given place, are two very different propositions. For instance, the later-discovered okapi in West Africa has never come under the personal observation of Stuhlman, who spent a long time at the Semliki; so, also, some species of antelopes, like the *Damaliscus hunteri*, the *Tragelaphus euryceros*, and others, have become known to us only of late.

JACKAL WITH PREY

The English work on *Great and Small Game in Africa*, which appeared in 1899, mentions only Somaliland as the habitat of the striped hyena.

How is it possible, one may ask, that animals apparently numerous are met with so rarely? For the same reason that lions and other beasts of prey are rarely seen; they are wary and cautious and know that their safety depends on their power of hiding and of escaping observation. How rare is even the sight of a fox or a wild-cat in our fields and woods.

Four times I have been in East Africa, and but once I saw a striped hyena in the daytime; two more I saw at night when watching for game; one hundred and twenty-one I caught in traps. The natives knew the animal, but were very reticent and indefinite in giving information regarding the "kingugua."

The "kingugua" is much more feared by the natives than the spotted hyena; it is supposed to be more aggressive and therefore more dangerous. But most likely it is only more shy and wary, and much better than its reputation. Attacks on cattle and human beings, with which it is credited, must probably be charged against that most rapacious of felines, the tricky leopard.

The spotted and the striped hyena alike are very friendly in captivity, and some become almost affectionate. There is one in the Berlin zoological gardens which will leave its food when it sees me in order to be petted.

In 1902 I caught a striped hyena in the Lafitte

SPOTTED HYENA APPROACHING THE CAMERA

Mountains. Forty carriers were needed to bring the iron cage to the coast. The animal is still alive.

I think I have proved conclusively that the striped hyena is as numerous as the spotted species in certain localities: along the Pangani River, near the Kilimanjaro, near the Meru mountain, Ngaptuk, Doenje-Erok; near the Ndjiri swamps, in the Matiom Mountains, in the Kibaya-Masai; near the volcanoes Kitumbin, Gileï, and Donje l'Eng-ai; by the natron lake, in Ukambani, in the Pare Mountains, and in the reaches of the Umba River.

When caught in traps the striped hyena proves less enraged and aggressive than its spotted cousin; it tries to hide by pressing its head close to the ground.

The jackal is found everywhere in the steppe, in daytime as well as at night.

Besides the beautifully and motley colored constant companion of the hyena (*Thos. Schmidti Noack*), I noticed in the mountainous districts another and larger kind, the *Canis holubi Lorenz*.

In the stillness of the night we often heard near our camp the mournful voice of the jackal joined with the howl of the hyena; it could still be heard in the early morning long after the hyena had retreated to its hiding-place. The jackals are not only seen in company with the hyena, but they are sometimes also associated with the lion and the leopard, who, when these followers grow too familiar, or when other food

SPOTTED HYENA ABOUT TO ATTACK A GOAT

is scarce, do not hesitate to turn on them and eat them.

The jackal's sense of scent is exceedingly keen. I had often but just baited my traps with carrion when one or more jackals made their appearance, joined later by their friends the hyenas.

The hyenas and jackals are the undertakers and grave-diggers of the steppe, burying, in almost no time. even the most gigantic mammals in their stomachs. How transitory, for instance, is the existence of an elephant. Yesterday the animal was alive and full of strength; to-day it lies dead, killed by a single shot. Soon the tropical heat would start the quick process of decay; but before nature can do its work, the hyenas and jackals attack the bulky body. When they have devoured all they can, or care to, hundreds of vultures, which have been abiding their time in the near-by trees, feast on the leavings, so that shortly nothing is left but the skeleton and the skin. The next rain accelerates the decomposition of the hide, which is then completely devoured by the hyenas and jackals. Nothing is left but the bones, scattered about on the ground. A series of steppe-fires and the constant glow of the tropical sun soon reduce to ashes the bones, except the mighty skull, which will resist the ravages of time for many years. Though lifeless itself, it harbors life; in its cavities birds build their nests or mice make their homes. But finally the

skull, too, will decay, and nothing will be left to record the drama which has been enacted.

The jackal is ubiquitous, seen everywhere and at all times of night, and often in daytime. In the fairy tales and fables of the tribes of the steppe, this cunning, wary animal plays the same part which we have assigned to our Reynard, the fox. The "umbria witu" of the Waswahili, the "endéré" of the Masai, the "l'eloande" of the Wandorobbo is the embodiment of cunning, smartness, and agility, the animal which outwits all the rest.

The hours I spent watching the scavengers of the steppe I count among the most enjoyable of my life. When I had baited my traps, or when I had killed some game, I often kept in hiding near by to watch the jackals, hyenas, vultures, and marabous collecting around the repast which was spread for them. During these hours of observation the light was unfortunately never favorable enough to allow me to take good pictures of these scenes of animal life. May others, travelling in the interest of science, be more fortunate than I!

XXV

ANTELOPES OF EAST AFRICA

LUDWIG HECK says, in his book *The Animal Kingdom*, any genuine horned animal, not a goat, a sheep, or an ox, is an antelope.

Under this definition are included the numerous species of horned animals found in the East African steppe, among which two stand out prominently by their size and strength—the large koodoo (*Strepsiceros strepsiceros Pall*), the "ormalu" of the Masai, and the eland antelope (*Oreas livingstoni Sclat.*), called "o'ssirwa" by the Masai and "mpofu" by the coast-land tribes.

The koodoo, whose male has the largest and stoutest horns among all the African antelopes, inhabits mountainous regions, and is rarely found in the Masai district. It is less rare in parts of Unyamwesi, and I have a pair of gigantic "record" horns from the farther regions of Useguha.

According to O. Neumann, the koodoo, while rare, is yet to be found in the Tare Mountains. In 1899 I made an excursion from the Pangani River into these

SKELETON OF A RHINOCEROS

mountains, especially to stalk the koodoo. I found a few solitary koodoos on slopes covered with euphorbia, and once a herd consisting of four cows and a buck. The latter I shot.

The animals were very shy, hiding during the day among the bushes and grazing only in the early morning on the mountain slopes, where grass and fresh leaves were scanty, as the dryness of the season was relieved only by an occasional rainfall.

It was extremely difficult to stalk the shy koodoo in the heat of the day on the stony and rocky ground covered with thorny vegetation. Almost in every hut I found one or more muzzle-loaders, which, no doubt, accounts for the scarcity of the koodoo in these parts. The only other part of the Masai district where I observed the koodoo was in the neighborhood of the Gilei volcano. But no doubt it lives also on the mountain slopes near the natron lake, as the natives of Nguruman possess numerous "bagurmas" (signal-horns) made out of the horns of the koodoo. It also exists still in the southern part of German East Africa, whence an officer of the protective troops brought me a number of horns of koodoos killed by his Askari near Tabora.

Much more numerous in East Africa than the large koodoo is the smaller species (*Strepsiceros imberbis Blyth.*), which, however, is found only here and there, in suitable localities. The Masai call it "o'ssiram," the Wandorobbo, "njaigo."

WHITE-BEARDED GNUS

The beautiful, white-maned, dark-colored bucks, and the lighter brown, hornless females, are a surprisingly fine sight to look at. The attitude of a buck, in particular, when he scents or sees a pursuer, is proud and imposing. The white transverse lines which mark the animal's coat make it blend easily with its surroundings. On the koodoo resting in the shade of trees or bushes, these lines look like streaks of sunlight. The extraordinarily large ears of the lesser koodoo, which lives in the dense, thorny bush, enable it to hear the slightest noise.

Though the lesser koodoo is now restricted to certain localities, it was formerly, no doubt, found in other suitable places, such as the thorny thickets near the eastern Ndjiri swamps, as the name "ngare-o'ssiram" (ngare—water; o'ssiram—small koodoo) indicates. The number of the lesser koodoos was unfortunately considerably reduced by the murrain.

The lesser koodoo is distinctly an animal of the plains, and it prefers the stony and thorny parts of the steppe. It forms, as a rule, only small herds. They have great power of concealment and very acute senses of smell and hearing. It is exceedingly difficult to stalk them. They may allow a hunter to approach very closely, but suddenly they dart from their hiding-place with wonderfully high and long leaps, and disappear again from sight.

As the lesser koodoos are mostly found during the day resting in the shade, and are abroad only in cloudy

GNUS APPROACHING THE CAMERA THROUGH CURIOSITY

weather, it is very hard, indeed, to take satisfactory pictures of them. The best chance I ever had I spoiled myself by my nervousness. Near the Kitumbin volcano I came upon a magnificent buck. Though he noticed me, he allowed me to approach within two hundred and fifty feet. I was highly elated, for I never had had such a fine opportunity. But when I developed the plate, the picture proved a woful failure.

The greatest enemy of the lesser koodoo seems to be the leopard. I often found pieces of koodoo flesh hanging in the trees, placed there for safe keeping by the cunning feline.

The largest and heaviest of all African antelopes is the eland (*Oreas livingstoni*), looking and behaving very much like our ox. Some bull elands are enormous in weight—one thousand eight hundred pounds or more—and in size; their neck is thickened with ample deposits of fat and their limbs are massive. The height of a large bull at the withers measures up to five feet nine inches or more. I found that the coat of females was invariably striped, ten to twelve white lines running traversely from the dorsal line round the barrel. Old bulls lose these markings completely. While the horns of the male are always regularly formed, I often noticed great variations in the horns of females.

The rinderpest destroyed the buffalo almost entirely in German East Africa; only a few small herds remain. It was feared that the eland had suffered a similar

fate, but I am glad to say that I have sighted many hundreds of them during my travels in German East Africa. The largest troop I found in Kikuyuland. It consisted of forty-seven animals, which were grazing in the wide, open plain in the company of ostriches, so that I could not possibly stalk them. My first eland antelope I killed near the Nakuro Lake, two others on English territory near Kibwezi. The eland runs in troops of varying size, each troop containing one or two adult males. Old bulls are often found singly.

The eland is an excellent mountain-climber. Hans Meyer and Captain Merker found it on the plateaus of the Kilimanjaro, fifteen thousand feet above the level of the sea. Professor Meyer believes that he has found a mountain species which never descends into the plain; but my experience and observation convince me that there is no such species. The eland, like many other African mammals, leads a nomadic life, keeping to the lower parts of the steppe during the rainy season and climbing to the mountain plateaus during the dry season, here to-day, there to-morrow, wherever fresh food is offered. The eland is known to stray to the very shores of the Indian Ocean in search of food. The heart of the hunter beats fast when he sees this fine game for the first time.

The "singoita," as the Wandorobbo call the elands, graze scattered over the plain. When suspicious of danger the herd assembles and starts on its flight, first in a

heavy trot, then in a pretty fair gallop. Before they change their pace they make a number of high jumps, a performance which is quite remarkable, considering the weight of the animals.

I often found elands far away from water, without which they apparently can go for days. They preferably feed on sweet grass, but also browse on slender sprouts of bushes and trees.

Although I know that eland antelopes are found in the mountains, I was yet greatly surprised when I saw, for the first time, a herd just below the belt forest in an impassable jungle of jasmine, vernonia, and smilax, more than six thousand feet above the sea.

Later I observed them beyond the forest region in the shrubs and bushes. I noticed them also very often in the mountain forests and on the open spaces in the woods. As I found the eland less numerous in the plain about the time of the dry season, I have good reason to believe that the mountain eland and the eland of the plains are one and the same species. The eland very rarely associated with other species of antelopes. They are timid and absolutely harmless; even wounded bulls hardly attempt to defend themselves.

The flesh, especially of the young animals, is exceedingly good eating, except in the dry season. It is reported to be the best game-meat in Africa. The hide, too, is much valued, but is very difficult to prepare for preservation.

ANTELOPES OF EAST AFRICA

Confined to the "Dark Continent" are the species of a remarkable genus (*Connochætes*) of antelopes, the gnus, called "njumbo porrini" by the Waswahili, "aingát" by the Masai, and "ngaita" by the Wandorobbo. While the white-tailed gnu, or black wildebeest, is now hardly ever found in a true wild state, and while small herds only are preserved here and there on farms, the brindled gnu, or blue wildebeest, and the white-bearded gnu (*Connochætes albojubatus*) are still abundant, the latter especially on the salt steppe of the Masai high plateau. The white-bearded gnu is larger and heavier than its South African cousin, and when seen from a distance resembles the buffalo. The traveller may easily mistake these gnus for buffaloes if he has never seen the wild buffalo in the wilderness but knows it only from descriptions or from the zoological gardens.

The question which species of the gnu inhabit the Masai country was not settled when I first went to Africa; to-day we know that only the white-bearded species is found there. It is nomadic, according to the season, highly sociable, and often seen together with zebras, ostriches, and with other antelopes. I once saw and photographed a remarkable trio — an old bull gnu, a giraffe gazelle, and a Thomson buck. Gnus, like zebras, can drink salty water. In the dry season we often found them for months near the natron lakes feeding on the short, fresh grass which sprouts in the moist ground of the receding water.

AN OLD BULL GNU APPROACHING THE RIVER

It is easy to hunt the gnu in parts of the country into which Europeans have not yet penetrated. The herd bull will allow the hunter to approach within a few hundred feet before he runs away, performing curious antics. Very old males are often found singly or in parties of two or three, having apparently been driven from the herds by the younger bulls. I have seen such old bulls whose heads were completely white with age.

While the pace of the gnu is considerable, it does not proceed very fast when running away, as the animal frequently stops to watch the pursuer with curiosity, and displays peculiar antics, prancing and darting around in all directions. Some observers believe that these antics are caused by the presence of larvæ of the bot-fly, but as these animals indulge in the same antics in captivity, I am convinced that they are prompted by mere playfulness and not by annoying larvæ. I could not find any in the dead bodies of the gnus that I had brought to my estate in Germany. These antics may partly be accounted for by the fact that in the breeding season the bulls of the same herd become fierce, vicious, and pugnacious.

I have found, however, in the stomach of gnus killed in the wilderness, a new kind of œstrus larvæ, and I am curious to know whether others have discovered the same.

In the wilderness the behavior of the gnu towards

man is timid and shy. It would be as dangerous as the buffalo did it care to make use of its horns. But in captivity the gnu often grows vicious, and the males especially are dangerous to meddle with.

In 1900 I was the first to bring live, white-bearded gnus from East Africa to Europe. Through the friendly services of Captain Merker, I had bought two male and one female two-year-olds from an old Arab in British East Africa. One bull I presented to the British zoological gardens, the other two animals I kept for breeding purposes on my estate, the Weiherhof, near Dueren.

The young animals had plenty of space within their enclosure to display their antics. The horns of the young bull had already been trimmed in Pangani.

One of my men volunteered to take charge of the newcomers, which behaved very well in the beginning. But they soon developed an ugly temper, so that one day my man declined to enter the enclosure and attend to the animals. "These are not animals," he said, "they are devils; the 'woman' is not so bad, but the 'husband' is no good." Armed with a strong whip, I undertook to bring the fighting young bull to terms. But I had hardly entered the enclosure when I was tossed high in the air. I was glad to escape without serious injury.

We had to confine the animals to a small, strongly-fenced-in place, for the bull very soon refused to be impressed by the whippings of three, or even four, able-bodied men. From day to day he grew fiercer and

ZEBRAS, WHITE-BEARDED GNUS, AND IMPALLAH ANTELOPES HERDING TOGETHER

more malicious. His travelling companion in Berlin underwent the same transformation. The three animals soon died from tuberculosis. They were the first and, as far as I know, the last white-bearded gnus brought to Europe from East Africa.

The gnus prefer the open, level country—the "boga" —to hilly or rocky places. One can often see hundreds of them enlivening the barren plain; they seem to wade about in water when the glowing mid-day sun bathes the steppe in a bluish haze. But, as a rule, the gnus take their siesta in the shade of scanty bushes and trees. At other times of the day the herds are seen dotting the wide plain. They seem to have their social rules, which they enforce if necessary. The strong young bulls, for instance, force the very old ones out of the herd, and keep them out; these may, however, often be noticed keeping at a respectful distance and looking like advanced outposts.

During the famine of 1899–1900 I often observed a kind of war-game between gnus and natives on the dusty steppe between the Kilimanjaro and the Meru mountains. The natives tried in vain to stalk the herds, which always managed to elude them, being warned in time by their outposts, the old bulls.

Near the Uganda Railroad one often sees large herds of gnus and of other antelopes, which are as safe almost as in well-guarded preserves, thanks to the energy with which the English government enforces the law

for the protection of this game. The government proved that it meant business when it fined heavily the first offender, a high English official. It is to be hoped that the German government will follow the good example set by its English neighbor when the projected railroad in German East Africa is built.

Besides the koodoo, the eland, and the gnu, we find in suitable localities in German East Africa the roan and the sable antelope, antelopes of large size and of graceful and slender form, both called "palla halla" by the Waswahili. O. Neumann has proved the existence of a third species of the genus *Hippotragus* in South Somaliland.

The sable antelope (*Hippotragus niger*) does not exist in the Masai high plateau proper; it is, however, frequently met with near the coast and as far as sixty-five miles inland, along the railroad line—Mombas-Tanga - Pangani - Sadaani. This deep - brown - colored "palla halla" is also absent in the districts near the Kilimanjaro; the pale - brown - colored roan antelope (*Hippotragus equinus*) I first met near the Ngare-Dobasch, and, later, in the Kikumbulia district. I was never fortunate enough to take a good picture of these beautiful and rare "horse-antelopes."

A species of antelope which the traveller very frequently meets with, especially in the most arid parts of the East African steppe, is the beautiful oryx antelope (*Oryx callotis*). The oryx is spread over Africa

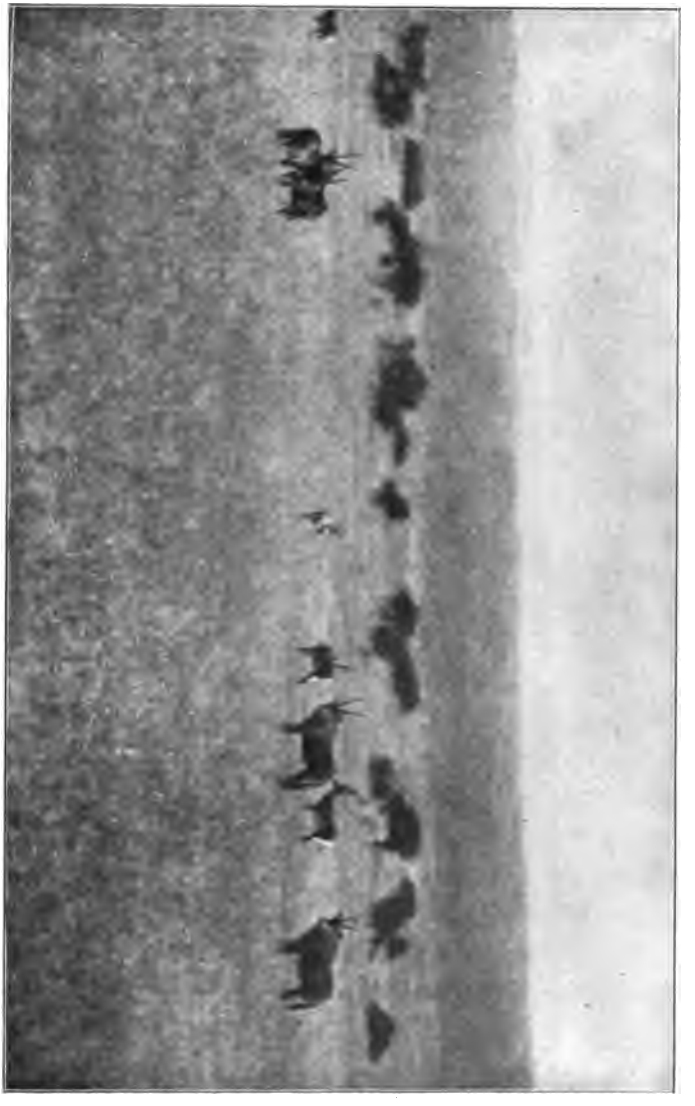
and the deserts of Arabia in numerous species, the largest of which is (*Oryx gazella*) the gemsbok of the South African colonists.

The oryx, typical for German East Africa, is the *Oryx callotis*, distinguished by its many tufts of hair and its beautiful ears.

The Waswahili call it "chiroá," the Masai "ol'gamassárok," and the Wandorobbo "songóri." They were not generally known to exist in the Masai countries before I proved that they roamed over the steppe singly, in small bands, and in herds of sixty or more. The old males I found, as a rule, leading a solitary life.

Although fairly abundant the East African oryx is not very frequently seen, as it lives in the most desert places and its color easily blends with the surroundings. Even so excellent and successful a hunter as F. C. Selous did not succeed in finding and shooting a specimen of the *Oryx callotis* in British East Africa, where he hunted for it during some weeks last year.

This antelope can exist independently of water for a long time, being able to obtain the necessary liquid from the night dew and from watery plants. Only during the dry season does it seek the drinking-places. Like the gnu, the oryx is essentially an animal of the plain, and does not care for the rocky hills and the mountains. This animal is exceedingly shy, and avoids inhabited regions. It is very difficult to approach a herd. They rest so that their scent allows them to notice an enemy



ORYX AND GRANT GAZELLES HERDING TOGETHER

[illegible] the wind, and their keen eye spies him [illegible] against the wind. Thus they are fairly safe from man or beast.

The oryx is a very difficult animal to kill, and it is almost impossible to catch it. To my knowledge none has ever been brought alive to Europe.

Antler-bearing ruminants are entirely lacking in Africa, with the exception of two species of deer confined to the extreme north of the continent, which zoo-geographically belongs to the Mediterranean zone.

Some species of the water-buck (*Cobus*), however, remind one very much of the deer by their habits, their bearing, and their behavior; the hornless females, especially, strikingly resemble our red deer. The males are adorned with fine, curved and lyrate horns. Although the water-buck, as its name implies, preferably lives near rivers and swamps, it sometimes ventures into the steppe, and in the dry season often retires into the mountain woods in search of food and protection from the bot-fly. Its scientific name is *Cobus ellipsiprymnus;* the Masai call it "ol'emaingo," the Wandorobbo "ndoi," and the Waswahili "curó." I found the water-buck very plentiful near the swampy banks of rivers, where I saw several hundred of them in one day. Except in the breeding season the water-bucks herd together according to sex, but the herds of females usually contain one or more males. The bulk of the males congregate by themselves, and very old bucks are

IMPALLAH ANTELOPES AT THE BROOK

mostly found wandering about singly. Water-bucks like to herd on islands in the middle of streams which they ford in shallow places, fearless of crocodiles. The *Cobus* has a disagreeable odor, which often betrays the stand of the animal, and which also makes its flesh uneatable for Europeans, while this tar smell does not deter the natives. The ewes are particularly shy and cautious. They always give the first sign of warning, and lead in the flight, the males bringing up the rear. Like all the larger antelopes, the water-buck is hard to kill.

In March, 1897, I was with my caravan on my way from the Kilimanjaro to the coast. Among my cattle was a black-and-white cow. One day I was sure that I saw this cow among the herd of goats which headed the column, but, to my great surprise, the whitish something proved to be an almost snow-white water-buck. I was so excited that I missed my aim. I stopped near this place three days hoping to see the animal again, but in vain. The old leader of my caravan told me that he had seen, at different times, a few white water-bucks, "nyama nyaupe," in this very neighborhood. The many species of the bubaline antelopes — the hartbeests — range almost over the whole of Africa and Arabia. They vary greatly in their coloring and in the shape of their horns. My Wanyamwesi carriers called them "punju," the Masai "logoandi," the Wandorobbo "roboht," and the coast tribes "kongoni."

The "kongoni" (*Bubalis Cokei·Gthr.*) of a reddish-

brown color inhabits the Masai steppe also. As is the case with most of the antelopes, its fore quarters are heavier and higher than its hind quarters. It is never found in the thick bush, but prefers the plain, where its

FEMALE WATER-BUCK

keen eye will spy an enemy far off and its fleet legs will carry it swiftly out of sight. It is difficult to stalk the "kongoni" when it once has been hunted. If a hunter, however, succeeds in killing the leader of a herd, bull or cow, then he can count on shooting also some members of the herd. It can hardly be described with what ease this strange and ungainly looking animal can move over the uneven ground of the steppe.

The reddish hartbeest—the Coke hartbeest—lowers its head when fleeing, and can use its horns very effectively against man or beast when pressed too closely. Of all the African antelopes, it is, according to my own experience, the most difficult to kill. It needed four and more well-aimed shots to bring down the old bulls.

Among the favorite localities frequented by the "kongoni" are open mountain slopes, sparsely covered with acacias, salvadoras, and torminalias, and also the open plain. It is often found associated with ostriches, zebras, gnus, Thomson gazelles, and other animals. Very young animals are quite as fleet as the old ones. The heart trouble that forced me to break off my third African journey, and to return to Europe, was caused by running a race with a young "kongoni" only a few days' old.

Aside from the antorbital glands, the bubaline antelopes are provided with glands on the lower end of the hind legs, the secretions of which, no doubt, are scented by the animals and enable them to find one another. Like many other African ruminants, the reddish hartbeests of East Africa can go for days without visiting the drinking-places.

On my first visit to Africa I found, in the region of the Victoria Nyanza, two other fine species of bubaline antelopes, the topi antelope (*Damaliscus jimela*) and Jackson hartbeest. In 1897 I killed, in British East Africa, a specimen of the *Bubalis neumanni*, which was

COKE HARTBEESTS

[illegible] represented in European museums.

The beautiful and graceful impallah antelope, the "[illegible]" of the natives, the male of which is adorned with splendid [illegible] horns, is found both in small troops and in large herds numbering two hundred head or more. Its favorite resorts are the bushy and forest-clad parts of the steppe, never the open country. The impallah antelopes are exceedingly shy and cautious. The alarm-note of the guards of a herd, a whistling sound like "[illegible]," can be heard at all times of night or day. At the approach of an enemy the animals try to escape in powerful leaps up to nine feet high and twenty-eight feet long. When fired at, they will check their flight and jump sideways. A herd of impallah antelopes crossing one another's path and often jumping one over the other is indeed a splendid sight.

The impallah are very fond of fresh, sweet grass, and are attracted by it often to their own destruction; for the natives, knowing of this fondness, frequently fire small patches of the steppe, fresh grass sprouts on these spots, and the unsophisticated impallah, attracted by its favorite food, falls a prey to the wily natives.

In the fall of 1899 I noticed in a herd of about two hundred animals at the Mto-Nyuki, near the Kilimanjaro, a completely white female. I stalked the antelope with great difficulty, and it took three shots to secure her. She was great with young, a normally

colored male. Robert Banzer, in Oehringen, mounted this rare animal for me. It forms now, with three stuffed servals, which are supposed to attack it, one of the finest groups in my "African" room.

The bushbok (*Tragelaphus masaicus neumanni*) is the only species of the genus *Tragelaphus* found in the northern part of East Africa. The Waswahili call it "mbawara," the Masai "sargá," and the Wakamba "nsoia." As the name implies, the bushbok has its habitat in regions covered by bush and smaller trees. I found it, however, also near swamps and in woods six thousand feet above the sea. The bushbok is almost nocturnal in its habits, keeping under cover during the day, feeding in the open glades in very early morning or late evening. It likes to stay on the same tract of bush, whence it seldom emerges. It allows the hunter to approach very closely before it starts with a peculiar cry on its flight. When wounded and closely pressed, the bushbok makes a plucky fight and is very dangerous. The young are born in November or December. I am sorry to say I never was successful in taking good pictures of the bushbok.

To hunt the many species of antelopes is, no doubt, fine sport. To be sure, there are no trophies to be gained which can compare with the antlers of our own deer. But the steppe offers the sportsman, who is also somewhat of a scientist, the opportunity of achieving distinction by discovering hitherto unknown kinds of game.

XXVI

GAZELLES AND OTHER SMALL ANTELOPES

THE two kinds of gazelles most frequently met with in the Masai-Nyika are the Grant gazelle (*Gazella granti*) and the Thomson gazelle (*Gazella thomsoni*).

The beautiful and large Grant gazelle was discovered in 1862 by Grant and Speke, in Ugogo, on their expedition which led to the discovery of the Victoria Nyanza. The smaller "goiliu" of the Masai was not known to zoologists before the English traveller, Thomson, found it in 1883. The horns of the stately male Grant gazelle are long, strong, and beautifully bent, those of the female are also long but not quite so heavy. This species is spread all over the Masai country and runs in herds of many animals. The herds are, in general, separated according to sex; the herds of females, however, are mostly accompanied by one or more bucks. The females bear their young in the summer months, retiring for this purpose into the high grass. As soon as the calf is able to stand, it joins with its mother the herd of females. The Grant gazelle inhabits the plains, avoids the thick forests, but frequents locali-

ZEBRAS, GNUS, ANTELOPES, AND GAZELLES HERDING TOGETHER—A HERD OF GIRAFFES IN THE DISTANCE

ties thinly covered with bushes. It feeds not only on grass, but also on leaves and fruits, especially those of a big species of nightshade (*Solanum*).

The Grant gazelle is very shy and cautious. The females lead the herd in their flight; the males form the rear-guard. A buck, when eying his pursuer, looks very pompous with his stiff neck and heavy horns; the females are gracefulness and agility personified.

During our spring months the Grant gazelle is tormented by larvæ and by horse-flies. The larvæ penetrate the skin and spoil, not only the coat of the animal, but also the taste of the flesh.

The Grant gazelle can go for a long time without drinking, and is therefore often found far in the steppe at an enormous distance from the drinking-places.

Once I came dangerously near to being impaled on the pointed horns of a female. Alfred Kaiser and I were one day resting in the neighborhood of the Meru mountain, when we suddenly saw, in the distance, a single gazelle. I stalked it, and fired at it, at a distance of about nine hundred feet, but only wounded the animal. I was greatly astonished when I saw it running towards me instead of from me. I realized that the animal was a female Grant gazelle whose young one, no doubt, was near my stand. I fortunately succeeded in killing the enraged mother by a second shot.

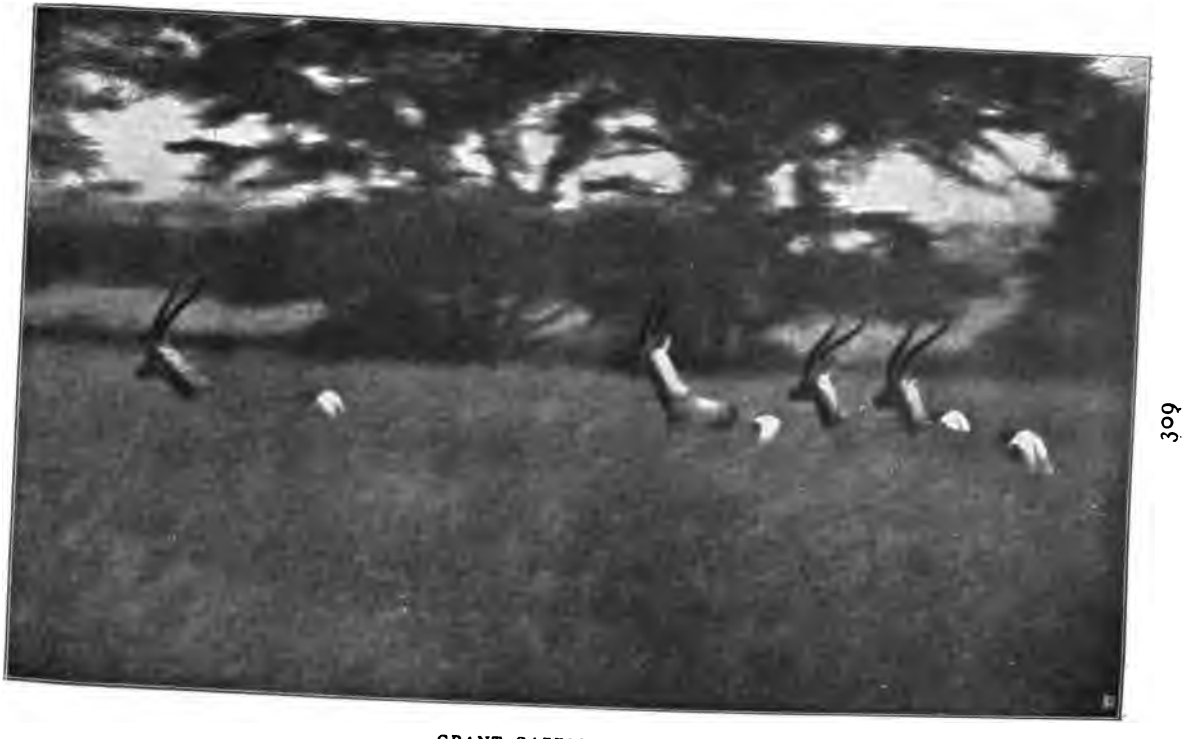
The Thomson gazelle resembles the Grant gazelle in

GRANT GAZELLES

form and color, but is rather diminutive, and is only found in the Masai country, where it lives on the open, grass-grown plain. It is not only much smaller, but also much less intelligent than the Grant gazelle. It will allow a hunter to approach within three hundred feet, and is slow to realize its danger. The male has long and strong horns; those of the female are poorly developed and ill-shaped. When running away from an enemy these animals carry their heads erect only at the start, but in full flight they lower them considerably. One may often see these pygmy gazelles, which feed exclusively on grass, pasturing among the tame cattle and goats of the Masai. The Masai abstain from eating the flesh of wild animals and seldom hunt them.

The Thomson gazelle moves its comparatively long tail to and fro almost constantly. This characteristic movement of the tail I have never seen mentioned in any description of the animal's habits. It enables one to recognize the animal at a great distance.

Occasionally one observes this gazelle in company with other animals. I have seen a single buck on the plain for days with a greenuk and an old bull gnu. I never noticed the Thomson gazelle in the districts on the left bank of the Pangani River, but elsewhere in the Masai country I found it in great numbers. In English East Africa, near the Nakuro and Elmenteita lakes, I saw thousands of them. These pygmy gazelles help to bring life into the desert, salt, and natron steppe



GRANT GAZELLE BUCKS

of the wide Nyika. May they long continue to do so. Among the gazelles we find two species resembling each other and both marvellously adapted to their desert homes.

Imagine a diminutive giraffe, exceedingly slender and graceful, of brownish color, provided with horns and capable of standing, like a goat, on its hind legs. Thus appears the Clarke gazelle (*Ammordorcas clarkei*) and the Waller gazelle (*Lithocranius walleri*), the greenuk. The former is not found outside of Somaliland, the latter is far more widely distributed. I observed it in the remotest regions of the steppe of German East Africa. The male is provided with peculiarly shaped horns, the female has none.

I was the first, in 1896, to prove that the greenuk does exist in German East Africa. The Waswahili call it "njogga-njogga," the Masai "nanjád," and the Wandorobbo "moile."

Near Buiko, at the foot of the Pare Mountains, I once noticed in the bright light of the setting sun, an animal rising on its hind legs to browse on the leaves of a mimosa. I was greatly surprised at this sight, and first thought the animal to be a giraffe. This optical delusion is pardonable if one considers that it is not easy to judge the distance and size of an object in the clear atmosphere of the steppe. I soon realized that I was mistaken and that I had before me the greenuk—Waller gazelle—with which I was familiar from pictures

THE GIRAFFE GAZELLE

and descriptions. My joy was great, and I tried to secure the animal. In the deceptive evening light I missed twice and the gazelle escaped. I told my fellow-travellers of my adventure, but they were sceptical regarding my claim to having seen a greenuk. But next morning one of them killed a female of this species, and I was fully vindicated.

The greenuk, which can live far from water, is widely distributed but very hard to hunt. It manages to exist in the desert thorn wilderness. In the midst of *Euphorbia, Cissus quadrangularis, Sanseviera cylindrica,* and acacia-bushes, it is able to find enough food. This gazelle avoids forests and parts of the steppe with luxuriant vegetation. It spends the day in the shade of acacia-bushes, and seeks its food early in the morning or in the evening.

When suspecting danger the animal stands for a moment erect and motionless, as if cast in bronze. Then it bends its long neck so that it forms almost a line with its body and moves noiselessly over the ground to the nearest cover. To the pursuing hunter the animal suddenly seems to have vanished into the ground, but from a higher point it can be seen gliding along like a shadow. No wonder that the greenuk has so long escaped the observation of former travellers.

Stalking the greenuk is very difficult and highly fatiguing in the thorny hunting-ground. Progress is slow and the animal is apt to notice the hunter long

before he has become aware of its presence. Then he must fire a chance shot or wait until the greenuk raises its head above the thorns. I used to stalk the Waller gazelle in the heat of the day when it takes its siesta. If one does not mind the heat, one is often well repaid for the trouble. In the neighborhood of the Kitumbin volcano, in the northern part of German East Africa, I killed within a few hours five bucks and sighted fifteen does, but spared them. It is very interesting to watch single gazelles or small bands when they are abroad in the evening. In the dry season when grass is scarce they may be seen standing on their hind legs browsing on shrubs, bushes, and small trees; they must then be very active to secure enough food.

The Waller gazelle, dwelling in the most desert places of the steppe and existing on the scantiest of food, does not live long in captivity and has, to my knowledge, never been successfully transported to Europe; it cannot adapt itself to different food and different conditions of life. Even Menges has not yet succeeded in keeping alive and transporting to Europe one of the gazelles of Somaliland.

One of the reasons that we so seldom are able to keep wild animals alive in captivity is that we do not consider sufficiently their psychical needs. They are usually young animals deprived of their mothers. With some, no doubt, goats will supply this want. But many of the "children of the steppe" we shall never

see alive in Europe under any conditions, as they can only thrive in their "inhospitable" home in the wilds of Africa.

Almost of the same size as the greenuk are the reedbucks, which are found all over Africa south of the Sahara. We must distinguish the reedbucks of the swampy plains from those of the mountains, both species comprising a number of zoo-geographical variations. Common to all species and variations of the genus *Cervicapra* is a glandular and generally naked spot on the side of the head just below the ears.

Typical for the mountainous regions of the Masai country is the beautiful Chanler reedbuck, differing greatly in appearance and in habits from the reedbuck of the lowlands. The American traveller, Chanler, discovered this long-haired, gray reedbuck in British East Africa about the time when I first went to the "Dark Continent." I was the first to find this species, which is zoo-geographically related to the South African Rooi Rehbok (*Cervicapra fulvorufula*), in German East Africa and to bring specimens of it to Germany.

I have never observed this reedbuck except on high hills or in the mountains. It seems inappropriately named, as it is never found in reeds or rushes. It frequents the dry, stony, and bushy slopes of hills and the mountain glades. The mountain reedbuck is widely distributed in small bands of three to five individuals on the western slopes of the Kilimanjaro and on all

the mountains of the Masai steppe. It is remarkable, indeed, that an animal as numerous as the Chanler buck has escaped the observation of previous travellers. This reedbuck is characterized by a rather long tail, its isabelline-grayish coloring, its white underparts, and its peculiarly long hair. The mountain reedbuck, the bushbok, and the klipspringer lend life to the mountainous and hilly landscape. To observe and to stalk these three species of antelopes affords great delight to a hunter who does not mind the heat of the tropical sun. Towards evening, too, one may stalk the small bands of reedbucks when they pasture on the open mountain slopes. But they are very cautious, and their coloring makes it hard to distinguish them from their surroundings. The horns of the mountain species are not so long and thick as those of the species living in the reed thickets of rivers and swamps.

A genuine reedbuck (*Cervicapra wardi*) inhabits the reed thickets of the swampy regions of the Masai steppe, being smaller and having lighter horns than its South African cousin.

This reedbuck rests during the day in the grassy and bushy plain and seeks the water in the evening.

When stalking for game I often was startled by the sudden movement of an animal in the high grass or in the rushes not far ahead of me, fearing I had encountered a wild beast of prey. No hunter relishes the thought of meeting the felines of the Masai steppe un-

awares and at close range. I always felt considerably relieved when the animal proved to be a reedbuck. It is, however, exceedingly difficult to shoot it with the rifle in the high grass or in the reed thickets. In the valley of the Pangani I once spent a whole day stalking a fine male reedbuck. But I was bent on securing it, as I wanted to complete my reedbuck collection for the Berlin museum. Therefore, I did not mind wading about in the almost bottomless reed swamps of the river, where I could hardly distinguish anything a few feet away from me, sweltering in the heat and almost stifled by the moist exhalations of the swampy ground.

I found the females great with young in our month of August and the males extraordinarily sly and cautious.

The reedbuck is most successfully stalked in the early hours of the morning or evening. The animals, however, warn one another by a peculiar whistling cry; they are also protected by the swamp birds, which rise at the approach of the hunter and alarm the reedbucks.

One would think that the reedbucks of the reed-grown river valleys and swamps would hold their own even against the advance of man more successfully than the animals of the open steppe, but this, I am sorry to say, is not the case. In Rowland Ward's book, *Great and Small Game of Africa*, we read that the reedbuck, so common in the earlier days, is almost extinct in Natal, Zululand and Bechuanaland, and only rarely met with in the Transvaal and in Swaziland.

GAZELLES AND OTHER SMALL ANTELOPES

In the mountains of the Nyika I discovered a new species of the klipspringer (*Oreotragus schillingsi neumanni*). When pursued, this agile animal bounds from rock to rock, uttering a shrill sound of alarm. The Masai call it "n'gossoirú." I found this beautiful, small antelope on the dry mountain slopes and on the hilly, rock-covered steppe of the Masai high plateaus.

The bushy and forest-clad regions are peopled by numerous varieties of small antelopes. I have hunted and collected for our museums—the Harvey duiker antelope, the common duiker, the Kirk dik-dik, the Neumann steinbok, the Zanzibar antelope, and other pygmy varieties.

May others succeed where I have failed—namely, in taking satisfactory pictures of these graceful animals.

XXVII

MONKEYS

THE manlike apes, the mighty gorilla and chimpanzee, which have long been known to inhabit equatorial West Africa, were also found living in the forests of the western frontier districts of German East Africa.

Père Guillemé, who lived for many years near Lake Tanganyika, told me, in 1899, that the chimpanzee, called "soko" by the natives, inhabits the virgin forests of the Mzaua mountain, west of the lake. Specimens of this "soko" were lately discovered in the lake region of German East Africa, and a gorilla was not long ago found near the Kivu Lake in German East Africa. Professor Matschie called it in honor of its discoverer, Captain von Beringe, (*Gorilla beringei*).

In the larger part of German East Africa, in particular on the Masai highland which I explored, neither the gorilla nor the chimpanzee are found. It is, however, one of my dreams that I may be able some day to study the habits of these manlike apes in their native haunts. The stories told of them by early travellers

WHITE-TAILED MONKEY

are very fantastic and can hardly be taken seriously. The late Von Koppenfeld and Mr. Zenker have given us some reliable information regarding these primates which stand next to man.

I became very well acquainted, during my stay in the Masai highlands, with a most interesting member of the Old-World monkey family, the white-tailed colobus, or guereza (*Colobus caudatus*), the "mbega" of the natives. This monkey, which is shy and retiring, lives in the tops of high trees and feeds chiefly on leaves. The guerezas are large, black-and-white-colored animals with long and silky hair and white, bushy tails, their bearded faces having a serious and often sad expression. I found them in goodly numbers in the forests of the Kilimanjaro and the Meru mountain. They feed in the morning and evening, stripping the twigs of their leaves with their thumbless hands, eating greedily, and bellowing all the time. They are arboreal in their habits, living in small troops in the tops of gigantic trees, preferring those which are overgrown with beard-grass, the whitish-gray color of which blends with the fur of the monkeys. When the "mbega" jumps from branch to branch and from tree-top to tree-top, extending the long, white tail and spreading the hair of the body, it looks as if the beard-grass were becoming alive and assuming animal form to escape into the darkness of the deeper forest.

This tree-monkey is not adapted to walking, and is

seldom seen on the ground. It need not go to the river or other drinking-places to quench its thirst, for there is plenty of water stored up in the hollows of the trees.

The colobus loves the solitude of the woods and is rarely seen near human habitations. Where it is not hunted, it is full of curiosity, and not over shy. But its fur, unfortunately, is a much-desired article of trade, and therefore the animal is pursued and its numbers greatly diminished by European and native hunters. This is to be regretted very much, as the "mbega" is perfectly harmless and does no damage to the plantations as do the destructive baboons and lemurs.

The beautiful guereza cannot escape its doom—inevitable destruction. As many of the tribes of man disappeared when they came in contact with civilization, as the elk of our northern forests were killed rather than leave their native home, so the guereza will cling to its forests, the only place where it can exist, until the hand of man destroys this beautiful species. It simply cannot live long without its accustomed food, the aromatic leaves of the different kinds of trees in its native forests. The "mbega" rarely eats the fruits of the trees, and once in a while he may, for a change, feast on birds' eggs or young birds and certain kinds of insects.

Sometimes, towards morning, when the thick mist still hovers over the virgin forest and the twigs and leaves are heavy with dew, the woodland stillness is

broken by a strange-sounding humming and buzzing, beginning softly and then swelling into a mighty chorus, dying away only to begin again. It is hard for a stranger to realize that this noise is caused by the "mbegas" in the tree-tops. It soon serves him as a guide to finding the "ol goroi" of the Masai. High up in the tops of the gigantic *Juniperus procera* and of other big trees he sees the quaint singer jumping from tree to tree and disappearing in the foliage. Aside from this long-drawn singing, the monkey also emits at times a short grunt.

According to my observation, the guereza is born snow-white, and the fur becomes dark as the animal grows older. This monkey is infested by a species of ticks, discovered by me in 1899, the *Ixodes schillingsi neumanni*. These ticks cause a purulent inflammation of the eyelids.

A few years ago I found the "mbega" also in the Kahe and Aruscha-Chini oases. It has, however, as Professor Meyer has already pointed out, shorter hair than the mountain species. Here the monkeys were not hunted by the natives, but protected as sacred. The Askari of Moschi station, armed with breech-loading rifles, had no such scruples and almost exterminated the colobus of these oases. In 1900 it took me three days to secure three specimens for the Berlin museum of natural history.

This war of extermination has been carried even into the mountain forests to satisfy the demand for the fur

of the colobus. I found hundreds of skins ready for shipment to Europe by Greek and Indian traders. A missionary told me that he himself had hunted eighty animals within a month to sell their fur, for which he received from one to two dollars apiece. Indeed, a noble occupation to fill the leisure hours of a missionary!

On the coast of West Africa exists a species of monkey resembling the colobus. Its fur was "in fashion" some years ago, and hundreds of thousands of the animals were exported to Europe to satisfy a passing fancy. To be sure, a tax is now levied on every fur. If it could be collected in those wild regions it might prove restrictive. As conditions now are it can easily be evaded, and the hunt goes on merrily and will soon exterminate this attractive animal. I found on my expeditions through those mountain forests many of the poisoned arrows, as thin as knitting-needles, which the natives had shot in hunting the guereza in order to sell its valuable fur to the traders.

Before the European invasion the natives hunted the "mbega" only because its fur was used by the Masai-El Morane—the warriors—to adorn their ankles. In former years young "mbegas" were captured to be raised and sent to Europe, but none of the young animals reached their destination alive. I therefore decided to capture an adult "mbega," and I succeeded in slightly wounding and in capturing an adult animal.

With the help of the physician in Moschi station, I healed the wound in the head of the animal. For some time I supplied the monkey with his favorite food, fresh leaves and sprouts of the fagara. He refused any other nourishment. At last I coaxed him into eating bananas. I selected the strongest and most capable of my blacks to take care of the "mbega" on our march to the coast. It was a comical sight to observe the tall, black fellow marching along, protecting with an improvised parasol his protégé, who was tied to him by a leather strap. Once in a while they would have a "falling out." The whole caravan then stopped and looked on, cheering and teasing, until "Feradji Bibi" and his charge had "made up" again. My troubles with the delicate creature were endless. It was not only hard to select suitable food for the monkey—for his favorite fagara did not grow along our route—but he occasionally showed symptoms of fever, which I counteracted by dosing him with quinine. At last I got him safely to the coast and transported him to Berlin, where he lived two years in the zoological gardens in the care of my friend Dr. Heck, before he fell a victim to the changed conditions of climate and food, and, no doubt, also to homesickness for his native woods. When I returned to Europe from my fourth journey to East Africa, I had with me three "mbegas," which my friend Captain Merker had captured for me by cutting down a few trees in which he had noticed

BABOONS ON THE STEPPE

them. Only one, a female "mbega," reached the Berlin zoological gardens, where she died three days after her arrival. Captured "mbegas" very rarely become familiar with their keepers. They are retiring, and apparently suffer from an irrepressible longing for their native forests. There is nothing apelike and comical in their behavior; they are quiet, dignified, and grave, qualities which harmonize with the solemn character of their mountain-forest home.

How differently the baboons behave in freedom and in captivity. They are very gregarious, assembling in large troops, and inhabit, not, as one might suppose, the forest-clad regions, but the plain and rocky parts of the country.

The yellow baboon (*Papio ibeanus*) prefers the plain. The coast tribes call it "njani," the Masai "ol'dolal," and the Ndorobbo "kireije." It climbs the trees only in the night-time, to sleep there in comparative safety from beasts of prey. During the day the large herds roam over the plain in search of food, which consists of grass, leaves, wild fruits, seeds, all kinds of insects, birds' eggs, and young birds—in short, the baboon seems to be omnivorous. It may also kill and eat very young pygmy antelopes, but the story that it attacks full-grown animals, I do not credit. The large herds, often numbering hundreds of baboons, are conducted and guarded by the elders, who are exceedingly, watchful against danger, particularly against their arch-enemy

the leopard. Three or four of the older males, for instance, sit on the trunk of a fallen tree looking out in all directions while the herd feeds or plays in safety. Some tear up blades of grass, others dig for roots, turn over loose stones eagerly, seeking for insects, or disport themselves in grotesque antics; the young ones cling to their mothers or follow them. To complete this picture of peacefulness, antelopes and ostriches graze unconcernedly among the monkeys.

But suddenly the scene changes. One of the guards has seen or scented me or a bird has announced my presence. A shrill cry of alarm and the animals disperse as quick as lightning. The monkeys gallop away, the females and young ones in the van, the older males bringing up the rear, looking around from time to time without stopping in their flight. These old male baboons are a good match for a leopard, which therefore confines its attention to females and young ones. The canine teeth of the baboon become in the adult males formidable tusks, effective against the largest of their enemies among the wild beasts. There is not the slightest doubt in my mind that the baboons have a kind of language, by which they not only express their emotions, but by means of which the older animals, when danger threatens, give their commands, that are understood and obeyed by the herd. The baboons in their flight show that they have a kind of social organization, and that the elders hold authority over the rest.

They drive the laggards on by dealing them blows and by boxing their ears; they jump on steep rocks or climb trees to see if they must continue their flight.

The baboon's sight is excellent. The ones which I kept in my camp would recognize me at distances far beyond the range of the human eye.

It is highly interesting to observe a herd of baboons when, about five in the afternoon, they go to their accustomed drinking-places. If they drink from a large stream, they have to avoid the treacherous crocodiles. Should one of these be seen, the monkeys retreat from the water grunting and squeaking angrily. The old males watch the crocodile from some elevated point, tree or rock, and advise the herd when the danger has passed. They again approach the stream, drinking carefully and ready to run. The baboons prefer to drink near shallows, because there they can notice in time the approach of the reptiles.

In entering the undrained part of the Masai lands, the region of the "great East African basin," we often meet in the mountains a dark-green species of baboon (*Papio neumanni mtsch*) which O. Neumann discovered there about 1890. They prefer to dwell in large herds on the open mountain slopes, and rest at night among steep rocks, where they are fairly safe from the leopards. In the early morning one can see them sitting close together on the top of large bowlders, shivering until the warm sun brings them warmth.

NEGRO CHILD PLAYING WITH A BABOON

I used to watch these birds for hours with a good field glass. The mountain slopes appeared to be peopled by a primitive race of men busily moving about in their strange grasses. I suppose I was as much an object of curiosity to the big male guards who did outpost duty as they were to me.

Baboons are rarely hunted for mere sport; to shoot them and to see them lie with all the signs of an almost human agony goes against the grain of the true sportsman. Yet I had to kill some, since I travelled as a collector rather than a hunter. Once I wounded an old male baboon and followed him into his cave, where I found him lying, his hands pressed on the deadly wound. The savage expression had left his face, and he looked at me with an expression of suffering and anguish, and perhaps also of reproach. Never shall I forget this sight and the feelings it aroused in me.

Another time I reached with my caravan, after a march of twelve hours, a small brook. It flowed through desert, rocky land. Suddenly one of my men startled me with the cry, "Mtu bwana!" (Master, a man!) and he pointed to a manlike form which rose from behind a rock about three hundred feet distant, looking very weird in the twilight. No doubt the apparition looked like a human being, but it was a large male baboon that acted as sentinel for his herd. With a warning cry he disappeared.

Very often one can hear these warning sounds at

night when the leopard is abroad in search of prey. It is a strange concert: the shrill cries of alarm mixed with the deep, hoarse bark of the adult animals of the frightened herd, and the shrieks and squealing of the young, together with the grumbling snarl of the disappointed beast of prey.

The baboons show a great deal of character compared with the tricky and unreliable lemurs, of which three species are found in the Masai lands.

They exhibit their likes and dislikes in an unmistakable manner: while they are full of affection for their masters, and love to be petted by them, they are often very averse and savage to strangers. One of the best trainers of animals could do nothing with a baboon brought by me to Europe and who never failed to obey me.

In Moschi station a baboon was kept as a pet chained to a tree just in front of the gates of the fort. The big, fierce-looking animal had formed an intimate friendship with a small black child of about two years. Every day the little negro baby crawled on all fours from his hut to the monkey, with which it played for hours in the most amusing way. They were like two children of the same race.

About Christmas, 1899, when the natives in the neighborhood of Fort Moschi were in revolt and when an attack on the station was expected, the settlers withdrew every evening towards nine o'clock within the

[illegible] One day the baboon managed to free himself from his chain and joined the crowd of refugees. He was right; they had no business to let him face the enemy alone.

XXVIII

STALKING IN THE NYIKA

I HAVE hundreds of times followed the big and small African game, sometimes with but oftener without success. I shall describe only a few of my hunting expeditions; they will suffice to give the reader a fairly good idea of the difficulty and the fascination of stalking in the Nyika.

With the break of day I leave my camp, accompanied by thirty to forty carriers, each one supplied with a gourd of water. Silently and in single file we follow our Wandorobbo guides. Close behind me are the natives who carry my photographic apparatus and my rifles. My men are all trained to prostrate themselves at a given signal and to remain flat on the ground.

When leaving the camp one does not know whether it will not be necessary to spend the night in the open steppe. A supply of matches is therefore taken along in a small bag, unless we want to resort to the primitive way in which the Masai and Wandorobbo light a fire, by rubbing two pieces of wood against each other until they are hot enough to light a bunch of dry grass. My

[illegible] suitable for the [illegible] earth-brown shirt, [illegible] to the elbows, [illegible] closely nailed [illegible] keep the heat [illegible] the insects, soft leggings, and [illegible] well-ventilated felt hat. [illegible] helmet. The more [illegible] use and the strong sunlight, so that [illegible] resembles that of the earth, the better for the hunter, who will thus more easily escape the notice of the keen-eyed animals of the steppe.

My spectacles are absolutely necessary to complete my full equipment. To be sure they give me the keenness of vision with which my natives are endowed by nature, but they often are also a source of irritation and annoyance when they insist on becoming moist and interfere with my vision in critical moments.

I believe in total abstinence, and when travelling in Africa I never use alcohol in any shape or form, except, of course, for medicinal purposes. The small quantity I carry I usually administer to others. Whenever I use wine myself, as medicine, together with strophantus and digitalis, it has a wonderful effect. My natives carry for my own use boiled water in tight bags. When my supply is exhausted, I have to shift like my natives and drink, if need be, the liquid found in the marshes of the steppe, which, through the admixture of organic

and inorganic matter, often resembles thin pea soup much more than water.

The sun has risen above the hazy horizon—a brief but splendid spectacle is a sunrise in the tropics. In sharp outlines and still cloudless lies before us in the clear morning light the mighty mountain world of the Kilimanjaro, the highest elevation on the continent, the only German Alps. But soon the lower and middle regions will be hidden in thick clouds; they are already gathering at the foot of the mighty mountain range. The two highest peaks in which it culminates, the volcanic Kibo and Mawenzi, stand out in awe-inspiring majesty against the clear sky, clad in eternal ice and snow, bathed in rosy light! A mighty saddle, almost fifteen thousand feet above the sea, connects the gigantic peaks.

With longing we look up to these heights; our imagination pictures the beauty of the landscape between us and the mountains, its variegated flora and fauna. Deep and lasting is the impression which this panorama of steppe and mountain, now covered with haze and clouds, now bathed in the most marvellous tints, makes upon the beholder.

But we have not much time to spend in musing; we have a march of many hours before us into the wide steppe. We must tear ourselves away from the entrancing view. But we cannot help realizing that we are marching on ancient fields of lava which, belched forth

by the now extinct volcanoes, flooded this high plateau in prehistoric times. As far back as the Eocene time—according to Hans Meyer—the gigantic forces of nature, remoulding the coast of the earth, fashioned those majestic volcanoes, forming around them that great African depression the waters of which found no outlet into the sea, but are drained into the great inland swamps and lakes. To-day the fires of the crater of the peak of Kibo, which is six thousand feet in circumference and six hundred feet deep, are extinct, but the lava rock of the surrounding steppe is a lasting monument of their fury.

And over the steppe we now wend our way. To the right the western Ndjiri swamps stretch out before us, covering an enormous area of depression and grown over with papyrus. In the rainy season the waters of the southern slope of the Kilimanjaro flow into this basin, filling it to overflowing and changing the neighborhood for miles and miles into endless lakes. The natives claim that also in the dry season these marshes are fed by subterranean mountain streams. The "molog" creek, which suddenly disappears before us in the earth, lends strength to this belief, and it may be that the eastern Ndjiri swamps receive a constant tribute from the crystal clear water of the "ngare rongai" brook.

Only the southern slope of the Kilimanjaro mountain, rising in terraces, is well watered and covered in the lower part with rich vegetation. This portion is in-

GIRAFFES IN A MIMOSA FOREST

habited and produces an abundance of tropical fruits. The northern slope is arid and uninhabited.

Our way leads along the edge of the swamps over arid, salt-incrusted ground and through grass-grown marshes. Thick papyrus woods cover that part of the depression, in which the water never dries out, not even in the height of the dry season. Other specimens of the swamp flora are also found there, the *Pistia stratiotes*, for instance, and the *Pothomagæton*.

Long ago the birds have become wide-awake. I listen to the well-known melody of the beautifully colored shrike. "Kuctuc tititi," it sounds from out the acacia thicket. Red-casque hornbills fly ahead of us from bush to bush and tree to tree. A marsh-harrier crosses our path, making for the swamp; long-tailed, splendidly colored rollers fly screaming to and fro. A spotted bustard rises before us with a loud "raga-garaka-raga garaka," doing a number of somersaults for our benefit and flying off into the steppe. In spite of the early morning hour the air on the edge of the swamps is sultry and oppressive. On the moist ground around us young Madagascar frogs are leaping at our feet. I see an adder-like snake, catch it, and despatch one of my natives to take it to the camp together with the skin of a fifteen-foot-long python, which in vain had tried to escape us.

My small caravan makes up for lost time, my men step briskly. On our left sueda-bushes cover the ground, which is marked by hippopotamus tracks. We pass a

ANTELOPES, GNUS, AND ZEBRAS

reed-grown spot. Suddenly a herd of wart-hogs, which we had disturbed at their morning mud-bath, breaks out from the reed thicket towards the open steppe. Quickly my carrier hands me the rifle and I manage to kill the hindmost pig before it reaches the sueda-bush. One of my men carries it to the camp. Its flesh will furnish us a fine roast and its skin and skull will enrich my collection.

Again we proceed. The marshy ground is criss-crossed by the paths of the hippopotamus, but the animals have long ago retired into the impenetrable depths of the swamp thickets. Above us circles a screaming eagle hailing the morning with its high-pitched "gliue gli gli, gliue gli gli." "A reedbuck, master" (nyama bwana), my rifle-carrier whispers to me. A beautiful antelope with a yellowish coat, of the size of a deer, grazes on an open place unaware of our presence. I watch her—for it is a doe, and I do not mean to kill her—for a few minutes, take a picture of her, and then scare her away. I am not so lucky with a female koodoo, which takes to its heels before I can take a snap-shot.

Now the steppe becomes more open and arid and animals rarer. Only a few spur-winged lapwings follow us uttering their low, melancholy cry. My men look for the nests, which they find, full of eggs, in a near-by reed thicket.

We are advancing farther into the steppe, along the edge of the big swamp. A brightly colored jabiru is

disturbed by us and flies deeper into the reed thicket. Not far from the water two small Thomson gazelles are feeding. The cry of the jabiru warns them; they see us and withdraw to their herd, which we made out in the far distance. They allow us to approach them within four hundred and fifty feet, but then they gallop away. Their flight cautions a small herd of female Grant gazelles who, following the lead of a fine buck with long, lyrate horns, go around us in a large circle and eye the strange visitors of the steppe. The wind blows towards them, and there is no use trying to stalk them.

About three thousand feet distant I notice in the steppe a dark object. It is a bull gnu who has seen or scented us. No doubt he wonders who and what we are; the movement of his tail betrays his curiosity. We are about to stalk him, when a flock of crowned lapwings warn the gnu by their noisy twitter. The bull runs off in short leaps, looking around from time to time, and stopping finally, satisfied that the danger has passed. I steal slowly and in a roundabout way up to within six hundred feet of the bull and fire, but only wound him on the hind quarter. For half an hour I follow the bloody tracks when a branch of the swamp blocks my way. We are forced to wade in the paths of hippopotami and water-bucks in mud up to our knees. We see the gnu resting on a drier spot, but the thicket prevents me from firing at him. Again the bull escapes. I know the pursuit will last long and will take us quite a distance from

THE SACRED IBIS

our camp. The vitality of the African game far surpasses that of the European animals, just as the native is stronger, has greater power of endurance and greater animal vigor than the white man, whose wounds, for instance, heal up much more slowly than those of his black brother.

Pursuing the gnu we are again led into the swamp by its tracks, unintentionally frightening the winged inhabitants—the hammer-headed stork, the snow-white heron, the Egyptian goose, the jacana, the spur-winged lapwing, and others.

Now the tracks bring us again on dry land. Through woods of salvadora, acacia and terminalia, we reach

once more the open steppe. After an hour or so my native companions see the bull about forty-five hundred feet ahead of us still galloping on three legs. We come to a spot where the animal apparently has made a brief stop, for the ground is marked with blood and two splinters of bone are found. Sueda-bushes now afford us good cover. I leave my men behind, succeed in approaching the bull within shooting distance, and kill him. My men come up and skin the gnu. An Arabian kite, which had been following us for a long time in anticipation of a square meal, sees its expectation realized and alights on the dead bull. Other

WHITE-BREASTED EAGLE

kites join the first, but they can only pick small pieces out of the carcass. Suddenly a large, heavy bird drops on the ground close by and hops clumsily up to the smaller birds. It is a vulture. Soon the whole vulture family assembles to partake of the feast: the white vulture, the Ruppel vulture, the white-headed vulture, the white-backed vulture (*Pseudogyps schillingsi Erl.*), the eared vulture. Not unlike relatives, they fight over the booty, using their beaks and wings to make good their claim. Their quarrelling gives the poor kites a chance to snatch a few bites. The marabou-storks also feel entitled to a share in the spread. Like parachutes they drop from the sky and join the vultures. The birds that have eaten their fill fly lazily to the neighboring trees to digest the food. With great interest I watch this struggle for existence and take a picture or two of this battle of the birds.

Having thus spent a restful quarter of an hour, we continue our march into the steppe. Before us lies the wide and arid plain; the grass on the ground is dry and parched. Above us hover a pair of short-tailed eagles. They are not only beautiful but also strong. Few birds can soar as high as the *Helotarsus ecaudatus*, the plumage of which is strangely variegated with maroon, black, and gray. The ground on which we walk is everywhere undermined by the burrows of ground-squirrels and other animals. Here and there some shrubs and bushes relieve the monotony of the scenery. The rolling and

VULTURES QUARRELLING

sometimes hilly ground is broken by small rifts which after rainfalls dry out very slowly, and often attract herds of antelopes that browse on the fresh grass of these little valleys. In one of these I notice a herd of brown-red hartbeests (*Bubalis cokei*), clumsy-looking but powerful animals. I take a special interest in them, because their zoo-geographical variations are by no means fully known scientifically. Therefore I do not mind the hardship of stalking them. I leave my men behind and try to steal up to the herd. For some distance I have to crawl along on all fours, my hands being scorched by the intensely hot ground. The leaders of the herd are still watching my men, who are sitting in the shade of a euphorbia. I have apparently escaped their watchfulness. At last, after half an hour's hard work, I am near enough to be sure of my aim. Two bullets from my rifle and two bull hartbeests drop dead; the rest of the herd, ten animals, gallop away in a cloud of dust. My men now join me; a few carry the skins of the animals to the camp; with the remaining fifteen I penetrate farther into the steppe. Soon two greenuks come in sight, but observe us and escape. We meet many tracks of rhinoceroses, all leading from the Ndjiri swamps into the steppe. I follow the fresh path of an evidently powerful "pharu," fully aware that I may do so for hours and still fail to come up with the animal. The men accompanying me are the best of my carriers; they had been with me during my pre-

vious visits to the "Dark Continent." While their usefulness, aside from their being able to carry heavy loads, is limited, they are well trained in making out the tracks of animals, and all possess great power of endurance, especially of bearing thirst long and patiently. The best, in the latter respect, are the warlike and hardy Masai-El Morane and the Wandorobbo. They are far superior to the Wanyamwesi, who come from the well-peopled and well-watered Unyamwesi land.

But I am as inferior in physical endurance to a Wanyamwesi as he is to a Wandorobbo. The stolid negro has another advantage over the European. However he may suffer from thirst during the day, at night he lies down and soon has all the water he can wish for, in his dreams, while the high-strung European tosses about on his couch, kept awake not only by the feeling of thirst, but by the conscious and subconscious thought of it, which torments him as much as or even more than the physical want.

Water! Water! How is it possible to make the average European understand what thirst really means, especially thirst in the tropics, which is increased by the effort to find the means of quenching it? With every step that the thirsty explorer takes, under a tropical sky, in the hot, dry air, his perspiring body loses more and more of the essential element which he is seeking, for, though thirsty, he cannot afford to rest in the shade of a tree, as every minute is precious.

There is a rumor that the Mahdi despatched his enemies by starving them to death. He prolonged their suffering by allowing them water. The death struggle began on the seventeenth day. From this day on the Mahdi, with his retinue, would visit the dungeons to gloat over their agony.

In the tropical climate of Africa, man succumbs to

MR. ORGEICH AND NATIVE ASSISTANTS

thirst after two or three days; even one hot day is sufficient to exhaust a strong man.

I can speak of the tortures of thirst from my own experience. The caravan which I had joined on my first journey into East Africa had encamped for a few

days near the Nguasso-Nyioro in the Nguruman district. One hot day I went out to stalk game, accompanied by a number of natives. I was very successful, and sent most of the men back to the camp laden with the spoils of the hunt. At ten o'clock in the forenoon I drained the last drop of tepid water from my flask, but I did not intend to stray very far from the camp. Being very inexperienced, I was carried away by the novelty of such hunting, so that I found myself many hours distant from the camp before I thought of returning. The two natives who were with me lost the way, and when night came we found ourselves in the middle of a thorn thicket, not knowing which way to turn. In the hope of attracting the attention of my friends in the camp, I fired in quick succession most of my cartridges, but no answer came. We resigned ourselves to spending the night in the "pori," the thicket. My black companions fell asleep almost immediately. I was kept awake by a feeling of intense thirst. While restlessly shifting my position, my foot knocked against a hard object. It proved to be the bleached and half-decayed skull of a buffalo.

My thirst becomes more and more tormenting; my feverish condition painfully intensifies my sense of hearing. I perceive strange crackling and rustling noises around me in the dry thicket. Near me in the bush a galago utters a shrill yell; a screech-owl answers the lemur. Minute after minute, hour after hour

pass. Hark! What kind of a sound is this? A long-drawn-out, mournful note, beginning low and ending high; then, after a short pause, a cry resembling the laugh of a maniac. There is no mistaking the animal. It is a hyena, and it cannot be farther away than thirty feet. My men, too, are wide-awake and horror-struck by the cry of the "fissi." I raise my repeating-rifle to fire in the direction of the invisible visitor, but remember in time that I have only four cartridges left which I may need in defence against more dangerous beasts. So we keep the hyena off by shouting and by throwing pieces of the buffalo skull into the thicket. For quite a while we have to keep up this duet between man and beast. How easily might the stealthy leopard and the lion prey upon us! My imagination pictures to me the possibilities of such an encounter. But more intense than fear is the feeling of unquenched thirst. My tongue sticks to the roof of my mouth, my pulses throb violently, and I begin to feel dizzy and drowsy. Already my mind begins to wander, but above all the confusion of grewsome and of gladsome images and noises, the reality of the torturing thirst asserts itself, and I cry, in thought, for water, water! The sky withal is clouded and starless, the air is murky and humid, the very ground exhales the heat which it has absorbed during the day.

Listen! I hear it again and again. Is it a hallucination of my exhausted brain or is it real? It must be

real. Again and again I hear it, the cheerful twitter of a small fly-catcher announcing and welcoming the break of day.

As soon as the darkness around us is dispelled we rouse ourselves, and, though not knowing whither we go, we find our way at last out of the thicket into the open steppe. And we struggle on with heavy steps, kept up by the hope of finding the camp. How long will it sustain us before we despair and lie down to meet our doom? Now we come to a slight depression. Can it be the lower, dried-out bed of the brook near which our tents are pitched? Eagerly we follow this promising path. The ground becomes softer, and at last we find water! It is only a small, stagnant pool, but it is water, and in slow, long draughts we quench our thirst at last. Filled with new life we proceed and reach the camp and are welcomed by our friends.

It may sound childish, but that morning I could not get enough of the precious water. I drank of it, petted it, bathed in it for hours. But whoever has suffered thirst in the tropics and has given up all hope of relief will fully understand my behavior.

One experience of this kind is enough, and the hunter will in future be careful to make sure of his way home to the camp, for his hunt is not over when he has killed his game, but when he has safely returned to his starting-point. I had learned my lesson, and when, a few days later, I went hunting again

I resolved not to venture too far into unknown territory.

Again I followed the fresh tracks of a rhinoceros leading through salvadora and capparida bushes into the open steppe which is broken by slight depressions and small rifts, dried-out, periodic river-beds. I may meet the animal any moment or I may never even see one. The wind being favorable, I need not fear that the animal may scent me. So as not to be heard, my men and I move as silently as possible, marching in single file. Suddenly one of the men points to a far-off cluster of acacias. With my field-glass I see the rhinoceros lying under one of the trees. Steady nerves are needed now. I have a good chance to stalk my game, but I also run an unusual risk in the open, practically coverless, country should I merely wound the animal and should it turn against me. Accompanied by two rifle-carriers, I manage to steal up to within two hundred feet of the sleeping creature.

I must kill it or it may kill me. Yet it goes against my grain to fire while it is asleep. My voice sounds strange to me in the solitude of the wilderness when I startle the beast with a shout. Quick as lightning the rhinoceros is on its feet and pricks its ears. A sharp report from my rifle and the infuriated animal turns twice around in a circle more swiftly than a horse would when given the spur. A second bullet settles the mighty beast. With a thud it drops to the ground.

I approach it carefully; its eyes are still open and blinking. A shot in the ear makes assurance doubly sure; a second shot and life is extinct. I call my men and we skin the head and loosen the horns of the dead animal. It takes us over an hour to do so. Then we cut off some choice pieces of flesh and return to the camp. My pedometer indicates seventy-two thousand steps, and we are entitled to a good night's rest.

I was encamped near the "Ngare na lalla" in the Masai district Matumbato. Early in the morning of a fine October day I leave the camp with a number of my carriers to climb the southern spur of Doenje-Erok mountain range. After marching up-stream for some distance we cross the high steppe which is broken by numerous rifts, periodic river-beds, until we reach the foot of the outlying hills.

We came across many tracks of animals which, during the night, had been drinking at the brook. Small, belated herds of gazelles and antelopes cross our path and gallop away into the steppe. The day promises to become hot, for the sky is cloudless. The birds have not yet gone to rest in the bushes and trees and thickets. A couple of Caffer hornbills, large numbers of spurred partridges (*Francolini*), and two large strings of guinea-hens fly up in front of us. The metallic "rshrshek-grrrr-ek-ek-ek-ek-ik-ik-ik-igh-igh-igh" of the hens accompanies their flight. The cries of turtle-doves,

sand-grouses, etc., fill our ear. The laughter of the green hoopoo, the "el gononi" of the Masai, is answered by the barklike cry of the *Chizærhis leucogastra*. Three enormous bustards rise slowly into the air about six hundred feet ahead of us. They are safe to-day for I am after rarer game. Even the graceful, small dik-dik antelopes I only watch, but do not disturb. After a two hours' march over the broken steppe and the rocky and thorny hills, we meet two greenish-gray-colored mountain antelopes, two fine African chamois, klipspringers, called "n'gnóssóiro" by the Masai. These mountain antelopes exist in many varieties. The specimens which I took with me to Germany were recognized as a distinct variety. O. Neumann named it *Oreotragus Schillingsi*. Hunting these diminutive, fleet animals is exciting and welcome sport for a genuine sportsman. In Abyssinia the klipspringer is found nine thousand feet above the level of the sea. How high it climbs in the East African mountains I do not know. It loves the strong and rocky ground and is satisfied with the nourishment which the scanty flora of its precipitous habitat furnishes. Like a rubber ball, this agile antelope bounds from ledge to ledge, landing on a peak, gathering all four feet in the space of one, and looking out for its daring pursuer. In such a position I see one of the two which I am stalking. It is a buck. Although he is about six hundred feet away from me, perched on a peak across a deep rift, my bullet reaches him.

Two of my men find him and carry him back to the camp.

But I want to reach the crest of the mountain spur. The heat of the sun has already baked the stones and rocks of the steep slopes which we now climb, sometimes crawling on all fours, annoying the geckoes (lizards) on our path, which can easily run up on smooth and perpendicular rocks as their toes are provided with adhesive disks. The higher we climb the fresher is the vegetation. Nearing the bush-grown region, I notice excrements which denote the presence of dassies, those pygmy ungulates which are, strange to say, closely related to the monstrous rhinoceros.

The rhinoceros, the second terrestrial mammal in size, which for many hundred thousand years has held its own in the struggle for existence, is doomed to extermination within an appreciable time by the hand of man, armed with the poisoned arrow and the destructive small-caliber rifle, while the little dassy has a good chance to outlive even man. They multiply like rabbits and they are hard to hunt. At the slightest alarm they run into their hiding-places among inaccessible rocks or under the ground. When wounded they are lost to the hunter if they escape into their holes. The average hunter leaves them alone; only the collector will patiently hunt them to provide museums with specimens. The dassies live on a friendly footing with the klipspringers; both warn each other of approaching danger. Among

animals the dassy has two mortal enemies, the leopard and the eagle, but the wary dassy is not easily caught napping.

Our way leads us higher up into the mountains, over open ground and through thorny bushes, in the heat and glare of the sun, until we reach the crest of the outlying chain of hills. From there we command a fine view, far and wide, into the steppe. At our feet we notice a greenish line. It is the brook near which my camp is made, the tents of which stand out from the yellowish-brown ground. Farther away the brook disappears in the marshes which are covered for miles with reed thickets, and beyond these the steppe expands into apparently endless space.

The air, quivering with heat, casts a bluish hazy veil over the landscape, deceiving the eye as to the true distance and size of things. Had I the power to express the varied emotions and thoughts of the human mind at the sight of grand, pure, undefiled nature in its harmony of steppe, hills, mountains, and sky! But though they are inexpressible, they are indelibly inscribed in the mind, and often in the complexity of civilized life the memory of those sacred hours of communion with nature fills the heart with deep longing for an hour's solitude in the mountains of the endless Masai-Nyika!

But we must not tarry longer if we want to accomplish our object, to penetrate to the higher forest region

of the Doenje-Erok, which rises six thousand feet above the level of the sea, and which no European before me has ascended and explored.

We leave to our right below us the grass-covered hills and continue on our ascent.

Passing along one of the small valleys, the dried-out beds of periodic rivers, I notice a troop of four moun-

VULTURES

tain reedbucks (*Cervicapra chanleri*). They are scarcely represented in any European museum, and I consider myself very fortunate in killing a buck and a doe, which I then have carried to camp by two of my men.

The higher we climb the richer becomes the vegetation.

We follow a broad path well trodden by many generations of elephants and rhinoceroses. It leads through woods of shrubs and bushes into the cool, shady timber forest which is criss-crossed by numerous fresh tracks of those gigantic animals. From the bare top of a mountain I can clearly distinguish the configuration of the mountain range, the ridges, the outlying hills, and the highest peaks. But it would take weeks to explore the massive range of the Doenje-Erok. Marching along the crest of a mountain, we cannot help seeing the resting-places lately used by rhinoceroses. While I am on my guard against being suddenly surprised by one or several of them, my rifle-carrier whispers to me, "Umbogo, bwana!" (buffaloes, master!) He had mistaken a small herd of large eland antelopes for buffaloes. I kill a mighty bull which it takes eight of my men to carry to the camp.

Heading the procession, I advance with the twelve remaining men into the forest, forcing my way through the thick underwood, when I become aware of a rhinoceros which has been disturbed by my firing. I am by no means anxious to force an issue at such close quarters - the animal is only ninety feet away—and I am glad to see it trotting clumsily downhill.

In the thick underwood we notice one resting-place of rhinoceroses after the other, and we must proceed with a great deal of caution. Vines growing up on the tree-trunks and beard-grass hanging down from the

ZEBRAS

branches impede our progress considerably. Once in a while we catch, through some opening, glimpses of the sun-bathed steppe far below. Aside from bush-bucks and small duikers, we hardly come upon any antelopes. Our path is crossed again and again by rhinoceroses, which, fortunately, do not feel in an aggressive mood, but run away. We spend a well-earned half-hour of rest sitting on a projecting rock, from which we have a splendid view of the steppe below. Ahead of us rises a mountain-top, our next resting-place if we get there alive.

Again we plunge into the thick underwood, which after a while becomes so tangled up with vines from below and parasite tree-moss from above that we have, at times, to crawl through narrow openings in this jungle. Pushing my way slowly through the entanglement, I suddenly hear the familiar snort of a rhinoceros close at hand. Before I have even time to realize the danger which threatens the beast is upon me. Instinctively I pull the trigger and the animal drops dead, shot in the ear. The very same moment its two companions rush past me. Suddenly they stop, but only a moment, and then they stumble downhill, breaking noisily through the underwood. Had they taken it into their heads to charge me, I could not have escaped death.

My natives had disappeared as if the earth had swallowed them. Now they creep up to me, their faces

expressing consternation and fear. They implore me not to go farther on this dangerous ground, which even the Wandorobbo and Wakamba avoid. But I insist on going on, making, however, a very important concession for the sake of my own safety as well as theirs. To scare the animals away which may block our path, I discharge my rifle at long intervals. In spite of this sacrifice of valuable ammunition, I am almost run down by three rhinoceroses, who refuse to be scared by my shooting. Two I kill by lucky shots in the neck, the third, fortunately, does not charge, but runs away.

Now my natives positively refuse to go on, and I, myself, am completely unnerved. We descend into a glen to spend the night near a small brook. Suddenly the clouds, which have been floating in the blue sky, gather for a short time and discharge their surplus moisture in a shower. A big fire is lighted to keep off rhinoceroses and other animals, and all of us except the guards lie down to rest. The fatigues of the day and the pure and cool mountain air soon put us soundly to sleep, but two or three times during the night we are rudely awakened by the snort of rhinoceroses which seem to resent our intrusion into their domain.

Next morning we start on our way back to the camp down the precipitous southern slope of the mountain. I observe the gradual transition of the mountain fauna and flora into those of the steppe. We come down to

the region of the klipspringer and the dassy, and also meet two large herds of baboons. Having done all the shooting of quadrupeds I want, I now pay attention to the birds and secure a few white-crested turakoos.

Half-way down I stop and search the steppe below us with my field-glass. I can only make out a number of moving dots, big herds of game no doubt. A few hundred feet lower we meet large numbers of gnus, zebras, impallahs, etc., going to their drinking-places.

I had often climbed into the mountains of the Doenje-Erok la Matumbato range. But I have resolved that this expedition is to be the last. I feel some compunction at having again killed a number of rhinoceroses, for self-protection to be sure, and yet to no legitimate purpose. Besides, if I should go on visiting this mountain region, I would surely find my death here sooner or later, for I cannot forever depend on chance to rescue me out of the very jaws of death.

What I am telling here of the Doenje-Erok, regarding the number of "pharus" met with by the hunter, holds good also of the other mountain ranges of the Masai-Nyika and Ndasekéra. In this my report agrees with the statements of Thomson, Count Telekis, Chanler, Donaldson-Smith, and Von Hoehnel. They all have met in the mountainous regions numerous rhinoceroses. Yet the time of which I am writing is passing quickly. Professor Volkens, who lately spent two years botanizing about the Kilimanjaro, says that he

never saw a rhinoceros. To be sure, around and on that mountain range the reckless hunting indulged in both by government officials and by the Askari, the native soldiers in the pay of the government, had been carried on for years previous to the professor's visit. The first commandant of Moschi, Mr. von Eltz, killed not less than sixty two-horned pachyderms.

The final extermination of these powerful animals is only a question of time. May that time be far off.

XXIX

ON THE STAND AT NIGHT

TO watch for game at night in the wilds of tropical Africa is by no means as attractive as it may appear to the imagination of a European hunter.

To take one's stand, or rather seat, in a high tree is often impracticable, to do so on the level ground is not very promising, because, if the wind be unfavorable, most animals will scent the hunter and avoid the ambush. The best and most sportsmanlike way is, no doubt, to stalk the game in the daytime notwithstanding —or, should I say on account of—the danger it involves.

Yet whoever wishes to study the ways and habits of wild animals must undergo the hardship of spending some sleepless nights in the thicket. The numerous insects—ants, for instance—will keep him wide-awake, and, though he may not be successful as a hunter, the insight into the night life of many animals will fully repay him for his trouble.

I have yielded to the fascination of such night watches many times, and, like Count Coudenhove, in Somaliland, so did I in the East African jungles "learn to be afraid."

ON THE STAND AT NIGHT

Will the reader follow me to my stand?

It has been well prepared in a thorn thicket, into which even a lion will hardly be able to penetrate. An entrance has been cut into it, and three small circular openings have been made for me to pass through, if an opportunity should present itself. I have chosen this stand, not far from a drinking-place, which is—as the tracks tell me — frequented not only by ordinary game, but also by lions and even rhinoceroses. At break of night I take my stand with a reliable native. The entrance is securely blocked by means of thorny brushwood. Soon three spurred partridges come flying; they see us and flutter away. Strings of pigeons flit to and fro, to drink and to settle down for the night on trees and bushes.

The sun has set, but the light of the moon, brighter in the tropics than in the higher latitudes, enables us to distinguish the objects around us. I see that the bull—already doomed to die by the sting of the tsetse-fly—which is fastened as bait to a tree, has calmed down and is eating his allowance of dry grass. In the tops of some trees near by a family of galagoes have made their temporary home. The laughing cry of these long-tailed lemurs is heard from time to time all through the night. An hour has gone by. A herd of antelopes pass us on their way to the drinking-place. They are water-bucks. They drink their fill and disappear again. Though I begin to feel tired and sleepy, I force myself

to keep awake, and I also arouse my black companion, in order to stop his loud snoring. It is hard to fight sleep, for nothing engages my attention however intently I watch the neighborhood through the three loop-holes in the thicket. Nothing? Through the opening on my right I faintly distinguish a black, massive something moving slowly in my direction. Now the huge mass divides in two. The moon, shedding more light on the mysterious apparition, reveals to me two full-grown rhinoceroses. They pass my stand within three hundred feet, but not without hesitating a few minutes, for they have scented our presence. They proceed to the drinking-place. For some time I hear them splashing about in the water. It is remarkable, how noiselessly these gigantic animals are able to move along, so that even the keenest human ear can hardly hear them coming.

Again hours pass by without further incidents. A few jackals are howling in the distance and the galagoes in the tree-tops utter their peculiar laugh. Suddenly the bull shows signs of fear and bellows twice. Quick as lightning a grayish animal glides past the thicket, and the next moment bull and lion roll on the ground. At last my patience is rewarded. I have a capital chance to kill the king of beasts as soon as I can make him out in the entangled mass on the ground. I raise my rifle, take aim — then the moon is obscured by a passing bank of clouds and everything is wrapped

LION STALKING AN OX

in densest darkness. I cannot distinguish anything, neither the bull nor the lion, but my keen hearing discerns the snarl and growl of two lions. Another one, no doubt, has approached the bull from the farther side. I hear them tearing the flesh and crunching the bones of their prey. The yelling and laughing of the monkeys in the tree-tops sound like mockery.

To shoot in the darkness would be senseless. Nothing disturbs the lions at their meal.

At last the light of the moon breaks through the clouds and affords me the longed-for opportunity of placing a shot. But it is, unfortunately, not a telling shot, though I may have wounded one of the lions. At all events they have escaped and are lost to me. To be sure, three days later, my men found the skeleton of a lioness whose flesh had been devoured by hyenas and vultures.

Morning dawns and I return to my camp, tired out after this sleepless night, bitten all over by mosquitoes. The next two days I spent in bed with an attack of malaria. However attractive such a stand in night-time may be, from the point of view of an observer of animal life, the true sportsman does not like to kill from a safe retreat, but prefers the more exciting and more perilous method of stalking his game and of facing danger.

Often, too, he catches nothing but a spell of the treacherous malarial fever, as I did on my stand at night, which I have just described.

XXX

TRAVELLING UNDER DIFFICULTIES

NO doubt many of my readers will be astonished to learn that the best method of moving one's goods of all kinds on expeditions into the interior of Africa is by carrier and not by beasts of burden. Experienced travellers have told me that they would not use camels if they could, but preferred the human carrier.

To appreciate the justice of this view, which I fully share, one must know by experience how simple and much more efficient transportation is by human agency than by beasts of burden, considering the climatic and topographical conditions of tropical East Africa.

Some of the East African tribes furnish ideal carriers; they are willing, devoted, like children, to their master, patient and strong, carrying sixty pounds or more, day after day, without a murmur.

The late Baron Carlo Erlanger and Oscar Neumann have both written about the difficulties of travelling with camels and mules in Somaliland. The camel is the ideal beast of burden for desert plains, with a uniform dry climate, but is not adapted to countries like

East Africa, with its contrasts of conformation and climate. Other beasts of burden known to us—horses, mules, cattle, etc.—are out of the question in East Africa. The unhealthy climate and the sting of the tsetse-fly would carry them off quickly.

Railroads will hardly ever supplant the native carriers, as they are, and always will be, few and far between. On the native carriers, then, we must place our reliance if we wish to start on an expedition of adventure or scientific discovery. They know the regular caravan roads so well, by experience and information, that they can time the day and hour when the caravan will reach the different stations. But when a caravan, like my own, leaves the beaten track to penetrate into the pathless and uninhabited interior of the steppe, then there are difficulties and obstacles to be overcome, and emergencies to be dealt with, of which the ordinary traveller has no idea.

One of the greatest problems with which we have to wrestle is that of provisioning the caravan. Aside from the regular load of sixty pounds, and his cooking-utensils and general personal outfit, a native can carry vegetable food for not more than fourteen to twenty days.

This question must be settled at the start or else the expedition is doomed to certain failure.

The water supply is an equally important question, particularly during the dry season, when a man cannot be expected to go without drinking for more than a

[illegible] Drinking-places, flowing water, or pools have to be reached at least every second day.

In the good old time caravans crossed the steppe providing food by killing game as they went along. As soon as the tents were pitched all went out to hunt antelopes and other animals. I made it a point that every one of my men should eat every day a certain amount of vegetable food besides meat. This rule I carried out in spite of the enormous expense, even in the famine year, [illegible]. As I could not secure enough of the desired food in the country through which I travelled, I carried with me a large supply of Indian rice, which had to be replenished from time to time by sending small detachments of carriers back to the stations or even to the coast.

In ordinary times maize or beans may be obtained from the natives living within more or less easy reach.

It takes some time to fit out such an expedition into the interior with a caravan of about one hundred and twenty men. All the material has to be judiciously divided into loads of about sixty pounds, each man has to be assigned as carrier or as guard, and the guards have to be instructed and drilled. The disposition and packing of my apparatus and chemicals must be attended to with particular care. Many important things have to be taken along in double quantities packed in different loads, in case one should be lost or spoiled in crossing rivers or in other ways. At last the "safari"

CARAVAN TRAVERSING A MOUNTAIN PASS

[illegible] The mileage is increased by de-[illegible] eighteen miles a day. Most of my men have [illegible] are well recommended as trusty [illegible] There are, however, a few who will sud-[illegible] behind, but keeping [illegible] These "stragglers" must be caught, [illegible] for discipline's sake, and their [illegible]

[illegible] is a collection, the whole caravan is [illegible] preparing the skins of birds and [illegible] troublesome hard to prepare are the hides [illegible] crocodiles, elephants, and rhinoceroses. All [illegible] be labelled, carefully packed, and [illegible] experienced carriers, who, after [illegible] return with fresh supplies of food [illegible]

[illegible] the caravan must, at all times, not [illegible] attending even the smallest detail, but be [illegible] helping hand to every man. Only in [illegible] he gain the respect, the good-will, and af-[illegible]

But there are obstacles and difficulties not of man's making which every explorer and traveller has to make the best of. There is the poisonous tsetse-fly, whose sting kills animals which the traveller has taken along—dogs, mules, asses, and cattle. Diseases, too, will attack not only beast but also man. Small-pox is apt to accompany famines. In 1899 I passed through

some settlements of natives where the "ndúi" had claimed its victims. After a few weeks I noticed a small, dark pustule on my left hand. I thought it came from using arsenic in preparing the skins of animals. When I showed it to my taxidermist, Orgeich, he calmly said, "Small-pox." One of my men had caught the disease, and they had kept him out of my sight in order not to frighten me. I had him isolated and speedily cured.

Another source of annoyance is dysentery, especially when a whole caravan is infected with it by drinking impure water from some stagnant steppe pool.

I have suffered from it twice myself and know how difficult is a thorough cure and how easy is a relapse. No wonder that it is dreaded far more than malarial fever. It may break up an expedition if it occurs in a violent form. "Amekufu, Bwana!" (he is dead!) the leader of the caravan often reports of a patient. The best thing to do is to change the drinking-place as quickly as possible. Often nature will cure where the physician's art fails. One of my best carriers fell ill and was treated by two European doctors who were, for a time, with my caravan. Finally he refused to take their drugs, and after a fortnight he was well again.

Malaria is another enemy to man on his travels in East Africa. My men were suffering from it more frequently near the caravan roads and in settled districts

[illegible] the open uninhabited steppe. Europeans and [illegible] more densely populated regions suffer more from it than those in the highlands, and with them it is very [illegible] fatal. In certain camping-places twenty [illegible] were ill with the fever, but never [illegible]. In 1891 I tried in vain to induce a [illegible] who live in the Pare Mountains, to [illegible] skins to the coast. They loved [illegible] which they might earn, but they loved [illegible] more. They claimed that the sight [illegible] would cause them to die. At the bottom [illegible] light, the mountaineer's fear [illegible] the steppe.

The progress of an expedition is often impeded when [illegible] incapacitate the men to carry their [illegible] speed. In such cases application [illegible] will often effect quick cures. When [illegible] encamped for the night or a longer rest [illegible] my tents with the request, "Bwana [illegible]." I never refuse a man though [illegible] my patience when I feel ill myself or tired [illegible] work on hand. Aloe pills, dover pills, [illegible] or medicated cotton are given or [illegible] with Lysol solution for bathing [illegible] within reach.

A plague of recent importation into East Africa is the troublesome sand-flea (*Sarcopsylla penetrans*). These parasites were brought on ships from South America

to the coast of West Africa, whence they spread to the Central African lakes. They will, no doubt, soon be met by the contingent which ever since 1896 is working its way into the interior from the East African coast. They are not only a nuisance, but a positive danger to man and animal.

This small flea selects the toes or fingers for its attack; it bores its way into the flesh, growing there as big as a small pea, and if not removed in time may cause the loss of the member. The "fundiya funza," the sand-flea doctors, make a specialty of removing the parasites patiently and almost painlessly by means of small sticks of wood. One may often see in the infected districts natives walking about minus one or more toes. The flea attacks, likewise, monkeys, dogs, and other animals. The young rhinoceros which I succeeded in raising and shipping to the Berlin zoological gardens had almost daily to be cleaned of these fleas. I have often been forced to change my camping-place to avoid them. They managed to attack me, too, when I once lay ill for some days with malarial fever. One of my black boys removed as many as seven from my toes.

During certain times of the year flies prove a source of annoyance, though they are not quite so bad in East Africa as in Somaliland. In fact, only one kind is a nuisance to man and a danger to certain animals—namely, the often-mentioned, tsetse-fly. I found this

insect everywhere in East Africa, except in the mountainous regions, and its poisonous sting is deadly to horses, mules, asses, and also to cattle, unless well guarded and well stabled.

The tents of a caravan are also frequently visited by scorpions. While their sting causes swellings, it is not so dangerous by far as is generally believed. The natives do not seem to mind them very much. I have often seen carriers of my caravan putting the reptiles on their closely shaven heads, and allowing them to disport themselves there to the great amusement of the other men.

The ants are a great nuisance. During a long rest taken by my caravan, I found, after a few days, the bottom of many cases full of holes and many label-strings bitten through by white ants. They may even become dangerous to life when they surprise, in untold numbers, a sleeping person. The wife of a friend of mine, a government official, woke up one night in her tent to find the bed and herself covered with countless termites, in spite of the mosquito-nets. Her shrieks attracted her colored servants, who pulled off her night-gown, and rolled her about in the grass. They finally succeeded in removing the ants from their mistress. Many had to be torn from the hair and body. No doubt the lady was rescued just in time from a painful and horrible death. Is it to be wondered that the carriers step high and lively when the cry of the ad-

vance-guard, "Siafu," warns them of a swarm of ants which is crossing the path of the caravan?

Snakes in East Africa are neither so plentiful nor so dangerous as, for instance, in India, where a reward is paid for the skins of poisonous ophidians. On all my African expeditions I lost but two men who were bitten by vipers. Of course, the travelling carriers are less exposed to poisonous snakes than natives working on plantations.

In the chapter on buffaloes I have already mentioned the numerous kinds of ticks which, in some districts, can make life a burden to a European, while the tough-skinned natives are less molested by them.

No doubt, the greatest obstacle in the way of colonization of East Africa by Europeans is the malarial fever, which attacks the white settler, not once, but periodically, wears him out, and forces him back into healthier climes. Even settlers in the mountainous regions, which are comparatively free from malaria, are exposed to it on their travels through the lower steppe. The prophylactic dosing with quinine amounts almost to driving out the devil with the help of Beelzebub. The quinine is a preservative in one direction; it is, however, on the other hand, especially in the tropics, highly detrimental to the nervous system. I do not see how any one who knows the facts can encourage immigration, on a large scale, into the fever-breeding districts of East Africa. It is different with the traveller, hunter,

or explorer, who merely passes through the country, and knowingly and willingly runs this risk as well as others to satisfy his love of sport and adventure, or to accomplish certain ends in the service of science.

Malarial fever prostrated me more than once, and brought me within an inch of death, but even this risk has not been too great to gain an insight into the virgin life of the nature, animate and inanimate, on the far-off steppe of Africa. Often it draws me, in spite of all dangers and risks, with a mysterious, almost irresistible power away from our over-civilization into the simplicity of life in that wild and virgin country, where there is still elbow-room for a man to move and to employ his own individuality, and where so many scientific questions are waiting for investigation and solution. Many native tribes are dying out, and with them their language, customs, dress, weapons, and utensils; also their legends and myths. All these treasures are to be rescued from oblivion for their importance to ethnology. Also many of the races of animals are doomed, and specimens are to be secured "as long as there is time"—as Wilhelm Boelsche and Ludwig Heck put it. And men are needed with iron wills and constitutions of steel to solve those questions and to enrich our knowledge of the vanishing fauna.

Hans Meyer has graphically and minutely described his experience in exploring the tropical mountain world, down to the increased beating of his heart.

TRAVELLING UNDER DIFFICULTIES

The *conditio sine qua non* of travelling is a sufficient supply of water in the countries in which one travels. In a previous work I have tried to depict the torments caused by thirst. In the tropics water is more precious than gold; lack of water for more than two

BURDEN-BEARER SINKING IN THE SWAMP

or three days means death. It is impossible to travel in the heart of the "Dark Continent" without native guides, who alone know the whereabouts of drinking-places, unless one follows the streams, rivers, and brooks. It is impossible to penetrate into the more or less known wilds of Africa by simply consult-

ing the compass, and no one has succeeded in so doing.

Long before the first Europeans set out to explore the "Dark Continent," the Arabs had traversed it for centuries with their caravans, trading in goods and slaves, and had established beaten tracks, which later were followed by the Europeans.

One often finds native carriers and caravan guides who know the topography of Eastern Africa from the coast to the Congo: the paths, the drinking-places, the settlements of the natives, the food which may be purchased of them—in short, they know everything a traveller wants to know. In well-watered parts of the country, or in arid districts during the rainy season, one does not run much risk, but elsewhere and during the dry season it is suicidal merely to follow the magnetic needle without competent guides. On my expeditions in the Masai highlands, which are little known even to the native guides, I was more than careful not to get too far away from a watering-place before I had made sure of another ahead of me.

Sometimes in the rainy season, or at any time in the mountainous regions, the sky pours its treasure too liberally on the traveller and his caravan. I passed many a stormy night in the high mountain districts of the Masai-Nyika. Merely to think of them makes me shiver. For never in my life did I witness such a powerful combination of elemental forces—wind, water, and

cold—and never did I see such a display of electric phenomena as during those stormy nights.

The most terrible equatorial storm which I weathered raged one night when I travelled in British East Africa, on the "great divide" between the Victoria Nyanza and the Indian Ocean. And never shall I forget it. Added to the terrors of the storm was the constant fear of a surprise by the natives, who at that time molested the caravan road, which since then has been supplanted by a railroad. Since the English government could not police the whole country, it limited itself to protecting that road. The officer in command at Fort Nandi could spare me only eight Sudanese Askari. One night we were encamped near the road, when suddenly a violent thunder-storm began to rage, flooding our camp in no time, and carrying off part of my cattle, the young calves, besides other things. At the same time a terrific whirlwind uprooted our tents. We found but scanty shelter under the wet linen. Drenched to the skin and chilled to the marrow, we nestled together to keep warm. The display of electricity was fearful and grand. The whole atmosphere was charged with it. The artillery of heaven was cannonading ceaselessly; one flash followed the other, accompanied by mighty peals of thunder, and the rain poured down in torrents. When it was all over most of my collection was gone or spoiled.

The loss of the calves meant a great deal to me. I

had secured the cows from a chief in Mumia, near the Victoria Nyanza, giving a few old suits of clothes for them, as I was in dire need of fresh milk, having just recovered from a severe attack of fever. The zebu cows—which, by-the-way, come from India, as there are no African cattle—can mostly be milked only after the calves have drawn some milk.

Rain and storm pass off, but the dampness remains, causing sickness among the carriers, who can hardly endure the cold, damp air. Clouds obscure the sky for many days after the storm, and the caravan marches through wet grass often reaching above the heads of the men. Everything we touch is soaked with moisture and the food becomes mouldy. Fever germs have a fine chance to put in their best work, and many men are on the sick-list for days or weeks.

East Africa, we see, is a country of sharp contrasts. At one time the traveller is in danger of dying from lack of water, at another time he runs the risk of being drowned in it.

Sometimes the object of a journey is defeated by lack of information or by inaccurate intelligence, as I had occasion to learn when, in 1899, I made a short journey from Pangani into Useguha in order to hunt buffaloes. I was told they were plentiful there, although I had my doubts, as the coast districts of German East Africa had been visited that year by a severe famine. These famines, which are caused by droughts and locusts,

seem to occur at regular intervals, and they always leave destitution and death in their path. In Pangani alone over one thousand natives died of starvation and disease. The only food available was rice, which had to be brought from India.

I started on my excursion into Useguha on June 22d. My caravan consisted of ninety-five men, some of them armed guards, and a number of asses and mules. We took with us thirty loads of rice. After crossing the Pangani River we marched along the coast for about four hours. It was not long before we noticed signs of the terrible destruction the famine had caused. We found a few dead bodies of starved men and the cocoanut-trees eaten bare by locusts.

Instead of a long narrative I shall give an extract from the diary I kept during this expedition:

June 24th. March of eight hours, by way of Great and Small Kipumbbui, to Uguaia.

June 25th. March of six hours along the coast.

June 26th. March to Parramakarra; then to Java; lost our way. Everywhere withered mouma-palms deprived of their sap, the palm-wine. Natives avoid us. No guides can be secured.

June 27th. Start at 4 A.M. March to Quabigo. Lost our way. Through virgin forest and high grass. Spray like rain all day. Wet to the skin. Pass a Wasegua village. Huts deserted. Millet growing in the field. Other vegetation destroyed by locusts.

June 28–30th. March to a rocky hill. Spray like rain. Tracks of buffaloes and eland antelopes. Tracks about fourteen days old. Game, no doubt, has moved on to fresher grass. Up to

date nothing seen except a few lemurs and a reedbuck. Continuous rain.

July 1st. March through wet reeds to Muega. In camp at Quoamadi after nine hours' march. Huts tumbled down and deserted. Seventy-eight inhabitants starved to death. Rain continues.

July 2d. March to Gambo; received by chief of the village, Maka bin Ali; camp at Simbirri. Exchange of rice for native articles, aprons (*kissambo*), hunting-nets, etc. Succeed in buying a goat.

July 4th. From Sibirri to Mseko. Rainy and cold. Guide deserts us; we lose our way. In the woods we find a young Mseguha, lately killed. Caravan marches till 3 P.M. I proceed to Pangani. Carriers arrive the next day, July 5th.

My expedition into Useguha had thus been undertaken in vain.

Aside from the obstacles and difficulties which I have mentioned, the attitude of the native population has to be reckoned with.

I think I have proved by my expeditions into the thinly settled interior that it is possible for a private citizen, travelling with armed guards, to manage to get along with the natives peaceably without provoking a conflict. I have never had any personal difficulties in my intercourse with natives. If any of my men exceeded the bounds which I observed myself, I punished them very severely, even for the slightest depredations. At different times, however, I was obliged to make use of my rifles to ward off attacks made on my caravans, or to prevent the thieving Masai from stealing my cattle.

TRAVELLING UNDER DIFFICULTIES

Before describing a few of my adventures in this line I want to say that a traveller who, like myself, does not travel in an official capacity, protected by a strong military escort, exposes himself to great dangers, such as the unforeseen outbreak of a general rebellion of the natives or sudden attacks on his caravan. There was a time, not so long ago, when it was very difficult for me to get the permission to engage armed guards—Askari—for my caravan. An official once told me that he thought it was perfectly safe for me to travel through German African territory with a "walking-cane." Anyhow, if something happened to me, my death would be avenged. I responded that I had no doubt of that, but that I preferred to protect myself while living. The government, of course, has a right not only to forbid travel with armed guards, but even to show adventurers of questionable character or doubtful motives out of the country, but it should put no obstacles in the way of experienced travellers and explorers who are willing to furnish a guarantee for their good behavior. The officials are not always the best judges whether the natives are well or ill disposed, as the events in German West Africa go to show. In 1896 they had not the faintest suspicion that the rebellion in East Africa was brewing which came to a head in 1899.

In September, 1896, the big and well-armed caravan which I had joined was encamped near the Meru moun-

tain, a few days' journey from the Kilimanjaro, where the natives were reported to be peaceful and friendly. The inhabitants of the neighboring settlements came as usual to our camp, the women to sell fruit and vegetables, the men to look around and to chat with the carriers. They were, however, silent and sullen when I addressed them, and soon retired to their banana groves. The leader of our expedition being absent, my friend Alfred Kaiser and I were in charge of the camp. Towards evening a deputation of old men, led by a negro named "Shundi," a political agent attached to Fort Moschi, came to the camp and requested a conference, which was granted. Kaiser, in whose tent the "shauri" was held, and who knew Arabic, conducted the meeting through an interpreter. The natives informed us that the Loitomasai intended to attack the caravan. If we wished it, they would join forces with us for our and their own defence, and they placed a number of spearmen at our disposal, who were to aid us in garrisoning our camp. I remembered the sullenness of the natives, and both Kaiser and I suspected Mr. "Shundi" of double-dealing. We declined the offer most politely, and, in the hearing of the deputation, we instructed our guards to be particularly watchful during the night and to be sure to fire at any one approaching the camp. We were not molested that night. Upon reporting our experience to the officials in Fort Moschi, they only smiled incredulously.

Not long afterwards two missionaries, Messrs. Ovis and Seegebrock, came to the Meru mountain to select a place for a settlement. With them were the commandant of Fort Moschi and a strong detachment of Askari. They decided on a spot on the bank of a brook Towards evening they were warned by a woman to be on their guard against the natives. The Europeans disregarded the advice, but not so the warlike and wary Sudanese Askari, who kept awake with rifles cocked. Towards morning they heard a rustling in the banana groves, and they saw shadowy forms moving from cover to cover. Now they heard the clatter of shields and spears. Without delay they fired a few volleys. When the sun rose it shone on the dead bodies of thirty of the assailants.

The missionaries had remained on the farther bank of the brook. A daring black scout crossed the water and soon brought the report that the missionaries had been killed. A punitive expedition was sent, and the natives were pacified for a time.

Three years later I was again travelling in the neighborhood of the Kilimanjaro and the country seemed quiet and peaceful. The missionaries had not been molested for a long time. How these, by-the-way, expect to be successful, I do not quite understand. The comparatively small inhabitable region of the Kilimanjaro is divided into eight districts, alter-

nately given over to Protestant and Catholic missions.

A short time after my departure from Moschi my camp was visited at night-time by a number of natives. A shot by the guard scared them away and alarmed the camp.

Months passed without any other incident of this kind. When I returned from my expedition into the interior of the Masai highland, in 1899, and reached Fort Moschi, I found it in a state of actual war. The night before the natives had tried to take the fort by surprise but were beaten off. I put my own men at the disposal of Lieutenant Merker, who was in charge of the fort. We were on our guard day and night, but the natives, having failed in their first attempt, did not try a second attack.

A punitive expedition followed, nineteen chiefs were hanged, and peace was established. I think such wholesale executions will not achieve the purpose of terrifying the rebelliously inclined On the contrary, they will only sow the seeds of hatred, which some day will, no doubt, bear the fruit of revenge. The native warriors are brave and not afraid of death. A warrior of the Meru mountain tribes, who was told how senseless it was to expect to vanquish the Europeans, with their fire-arms, simply said, "I know nothing of the Europeans; I only know myself, my spear, my wives, and my cattle."

One of the condemned chiefs, Meli, did not wait until the board platform of his gallows was drawn from under him; calling out to the commandant, "Kwaheri Bwana," he removed the support himself, and met his death like a warrior, fearlessly.

And again, four years later, in the fall of 1903, I was travelling in the steppe far beyond the Kilimanjaro with a caravan of one hundred and twenty men. My armament consisted of thirty breech-loading rifles. Almost on the very spot where I was encamped, Masai-El Morane had, a year before, massacred a caravan consisting of three Greek traders and their carriers and had appropriated the cattle. I was, therefore, not very much pleased when the spearmen came in considerable numbers to my camp. When I limited the visitors to ten at a time, they all disappeared. I knew they had no grudge against me personally, and were only after my cattle, but I determined to be very watchful. On August 20th my caravan proceeded on a forced march. Towards evening we pitched our tents on the hilly ground of the steppe. Around our ninety head of cattle I had a close fence constructed out of the thorny branches of acacia and terminalia. The baggage was put together; my carriers stretched themselves out near by and soon were soundly sleeping. My armed guards were asleep near a special fire, and the sentinels made their rounds faithfully. I could depend on their watchfulness and went to sleep.

In the middle of the night, an alarm-shot aroused us. The Masai had followed us into the steppe, but, finding us on our guard, they fled and kept at a safe distance. We spent the rest of the night watching the enemy. My well-drilled carriers lay flat on the ground, the guards and I formed a square, and whenever we heard a noise of weapons we fired in the direction whence it came. No doubt we owed our lives to the watchfulness of the sentinels.

The Masai, as a rule, do not intend to kill the men of a caravan but to steal the cattle. They do not hesitate, however, to slaughter all who resist them, unless they find they are outnumbered or outwitted. They are certainly brave, but I have never seen a Masai warrior with shield and spear in the open field face a European with a breech-loading rifle. My plan to have a few rifles and Mauser pistols handy, near my couch, and to have my armed guards camp together with their arms in readiness, is a good one if one travels among the natives of Africa. I believe in treating them kindly and fairly, but also in keeping one's powder dry.

Shortly before the attack which I have just described was made on my camp, I had a strange adventure with some Masai warriors. I meant to take a picture of vultures devouring carrion. To this end I had a pit dug some distance from my camp and had it covered, in tentlike fashion, with a piece of brown cloth. I took my stand in the pit, and some carrion was placed to attract

the birds. After I had waited in vain for a few hours, I saw a number of Masai, who, to judge from their make-up, were on the war-path, approach my hiding-place on tiptoes. One of them made ready to explore the strange structure with his pointed spear, when suddenly they all took to their heels. My men in the camp had seen them and were running to my aid, thus driving the warriors away. All our efforts to find them were fruitless.

The Masai are not only very clever cattle thieves, they are also the best cattle drivers I ever saw or heard of. I once tried to follow up a number of Masai whom I saw driving a herd of cattle from Useguha in the direction of the Sogoni Mountains. They were about a mile away from us across a small valley. We crossed it to get nearer to them, but when we emerged on the other side the cattle thieves had vanished. But, aside from their thievish propensity, even the Masai are not, as a rule, hostile when justly and fairly treated. I am almost sure that if matters come to a bloody issue between travellers and natives that the first are largely to blame. The least expensive way of travelling is to act according to the principle—war supports war. No doubt many expeditions in the good old time were "self-supporting" enterprises. The easiest thing in the world is to pick up a fight if you wish it, and to have the semblance of right on your side. An arrow flies your way. No doubt it is poisoned, and is sent by

some treacherous native of the neighboring village. A volley is fired in answer to the shot. The natives who have a bad conscience forsake their homes, which are plundered by the "victors," who, well-provisioned, continue their march, on which they are supported by the spoils of the "enemy." Nothing is easier in the world —and cheaper.

But if you want to pay your way as you go along, you have to take with you loads of goods for exchange. In times of drought and famine you have to pay dearer than in normal times, as the natives sell you what they need most to subsist on until the next crop is ripe.

My expedition in the year of the famine (1899–1900) was my most expensive one, as I held my men to a mixed diet consisting largely of vegetable food, "poscho," with a small allowance of game.

It is still possible to travel in East Africa with comparative safety, and the native carriers are still patient and obedient companions of the traveller who treats them well. There are a few things of which I feel I have a right to be proud; one of them is that I have never found it necessary to shed the blood of a black man.

XXXI

GAME LAWS AND THE PROTECTION OF WILD ANIMALS

THE international conference for the protection of the African fauna, which was held in London, has passed a number of resolutions as a basis for game laws to be so formulated as to suit the conditions of the different sections of the "Dark Continent."

I must frankly confess that I do not approve the prevailing classification of animals into the useful and the harmful. Man interferes far too radically with the laws of nature. He proscribes animals which interfere with his special pursuit and tries to exterminate them. Regarding the wild animals, or rather the animals of the wilderness, the devotees of Diana have laid down the laws which they consider fixed for all time. Hunters and fishermen in Europe wage war against certain species, which they have put down as animals of prey, although they are in reality less harmful to the community at large than the game is to the agricultural interests of certain districts. And yet the farmer is not allowed to kill the game at sight, as he often would like to do. The game laws in civilized countries protect a number of quadrupeds and birds.

But, although the woods and fields are fairly well patrolled by the official guardians, the laws are often evaded by poachers and by licensed hunters.

How can one hope to protect the animals in Africa against European hunters, who, for the most part, know little of hunting and less of the nature of the hunted animals, and are, as a rule, anything but true sportsmen? If the colonial governments of Africa really wish to prevent the total destruction of the African fauna, then they must not be satisfied with merely issuing prohibitory laws which cannot be enforced in their vast territory, but they must follow in the footsteps of the English, who have approached the solution of the problem with their usual practical common-sense. The British government has undertaken to protect many specimens of the African fauna by establishing preserves in the neighborhood of the railroad lines under the supervision of its officials. This system has worked very well, and is also to be recommended to the German East African government.

For a long time the sportsman-hunter was proclaimed by books and newspapers to be the great malefactor, the destroyer of the rich African fauna. The sportsman, in the only true sense of the word, is responsible for an infinitely small percentage of the havoc wrought on the African animal world. The real culprits are: the traders, whose caravans feed on game; the would-be settlers, who, on principle, kill everything in sight; the

EAGLE AND GIANT BUSTARD

Askari, who fire at animals to perfect their rifle-shooting; the natives, who have been supplied with fire-arms and use them in the service of traders or to pay their taxes with furs or hides or teeth, and others, but least of all the sportsman-hunter.

Before the Europeans put their foot into virgin countries, the natives and the animals existed both in large numbers and side by side. The animals themselves, beasts of prey and harmless beasts, had been living for untold ages in the same parts of the vast country. The white man took with him his idea of harmful and useful animals, and has been busy killing the first without protecting or preserving the latter.

Laws for the preservation of elephants, while considered generally applicable to mere sportsmen, have been considered an impediment to traders, who in some way or other manage to circumvent inconvenient laws.

At the instigation of the London conference, a law was passed by some governments preventing the exportation of elephant tusks under ten pounds each. "On y mettra du plomb!" said a Congo trader, laconically, and a way was found of evading the law. German Kamerun has exported, within the last decade, nine hundred thousand pounds of ivory without collecting an export duty, which is in other colonies ten to fifteen per cent., and Great Britain and Germany collect no duty on the import of ivory. Who can say how many tusks of female elephants, made to weigh ten pounds

AN OLD LION IN A SWAMP

by pouring molten lead in their cavity, have passed the custom-houses without difficulty?

The question, Which animals are harmful and which are not? becomes more and more acute for Africa the larger the area of cultivated land grows and the more definitive the laws become regarding certain kinds of animals to be protected and preserved.

Elephants and hippopotami are, no doubt, harmful to the plantations. And yet the tolerant natives of India have not exterminated the wild elephant.

Hippopotami are particularly harmful by their wholesale devastations, which occur chiefly at night. A single visit by one or two of these "river-horses" can ruin a whole plantation. No wonder that European settlers are not willing to spare them!

Elephants, also, are able to do considerable damage to plantations, especially at night, but they have withdrawn more and more from the inhabited districts into the wilderness. Where they are preserved by order of the government, all unusual damage should be made good by the state. Wherever game is protected it will do some damage to individuals or to a certain part of the population—farmers, for instance.

Baboons. which may be hunted by everybody, are very harmful animals. They do a great deal of damage to the millet-fields and to other cereals. The natives build special huts, raised on poles, and put guards into them, who, by their noise, try to keep off monkeys and

birds. Wild pigs, too, must be prevented from rooting up the fruits of the fields, especially at night.

Besides, there are many rodents and lemurs and even small antelopes against which the native and European settler has to defend his plantations.

The other animals shun the habitations of man and live in the wide steppe where they do no harm. Rhinoceroses, in particular, avoid inhabited districts. The same can be said of the species of large antelopes and of giraffes. Yet Prince Loewenstein and I have often been obliged to refute the assertion that giraffes injure the trees by despoiling them of their leaves.

To destroy the fauna of Africa—with the exception of very few animals — is by no means justified; most animals do not injure the agricultural development of the settled districts.

The insects and small animals do much more damage than all the big animals combined. The greatest enemies of the coffee plantations, for instance, are the small insects.

It has been claimed that the killing of some of the larger animals is justified because the ticks which live on them spread infectious diseases. Such diseases are, to my knowledge, still prevalent in South Africa, where the big game has been exterminated long ago.

The large beasts of prey, as far as they live in the neighborhood of settlements, are unquestionably a danger to human life and as such ought to be destroyed,

together with the crocodiles and poisonous snakes. Rewards need not to be paid for killing them; the settlers will do so for their own protection.

In general I would say that animals which are a menace to human life or a constant, but not merely occasional, danger to agriculture should be exterminated. As to the rest of the beautiful East African fauna, it should be preserved, because in the wide steppe it is harmless to man and his pursuits.

XXXII

HUNTING BY THE NATIVES

OPINIONS by no means agree as to the effect which the hunting by the natives has had on the original wealth of the African fauna. I think that it is relatively harmless as long as it is not done by means of fire-arms and not in the interest of trade. In this opinion I find myself in accord with Count Goetzen, the imperial governor of German East Africa, and with the former vice-governor, Mr. von Bennigsen.

The natives have hunted for thousands of years before the European invasion into the "Dark Continent." Before the invaders joined in the hunt there was a wealth of game of all kinds, and not a single species was threatened with extermination.

The natives follow various methods of hunting animals. They use the bow-and-arrow and the javelin, the latter especially when hunting the elephant.

Noiselessly the poisoned arrow flies from the bow without warning the prey. It rarely misses its aim. The wounded animal is easily followed and found, for sooner or later the poison will kill it. A small piece of

the flesh about the wound is cut out, and the rest furnishes food for the hunter and his friends and family.

The natives are very careful in handling their poisoned and barbed arrows, which are carried in a quiver.

The poison is procured from a tree, *Acocanthera abyssinica*, and the Wakamba are said to prepare the strongest kind and best quality. The sticky, black extract is smeared on the arrow-head. A small piece of thin leather is fitted on the arrow-head and not removed until the arrow is used. I once procured some poison from a Ndorobbo, whom I found near two giraffes killed by his arrows, and I tried its power on a hen and a white vulture; the first died in seven minutes, the latter in ten.

Every Wandorobbo hunter marks his arrows and spears, so that there can be no disputing his ownership of missile and prey.

All kinds of animals are also caught by the natives in skilfully-dug-out and well-concealed pits—pits meant for large beasts, like the elephant and rhinoceros, and dug deep in front and in the rear, so that the trapped animal is, as it were, suspended, its body resting on the solid middle of the pit, its fore and hind legs hanging down without support. In this position the big captive is utterly helpless and easily killed. The pits are so cleverly covered with branches and dry grass that even the wary elephant is caught in them. In the moist mountain forests of the Kilimanjaro and in Niandi, near

A PART OF MY CARAVAN

the Victoria Nyanza, I found the cover of such pits so thickly grown over with moss that even the eye of the natives could not distinguish them from the surrounding ground. These pits are in some parts of the steppe so numerous that they are a danger to the explorer and his caravan. In them are caught, indiscriminately, males, females, and the young, while the hunter cares chiefly for the males. I often advised the commandants of the stations of pits which I found in the neighboring steppe, but it is hard to induce the natives to give up this destructive, but safe, method of catching the large elephant and rhinoceros. Lions and leopards are rarely caught in pitfalls.

The natives are also exceedingly skilled in the construction and use of all kinds of traps. Various snares and the "switch-up" are calculated to catch birds and smaller mammals, including dassies and pygmy antelopes. I have also seen natives driving small antelopes and catching them in nets.

The hunting by the African natives becomes destructive to the fauna of their country if it is done by other means than the arrow, the spear, the pit, and the trap, and for purposes other than for food and vestment.

I have always claimed not only that the natives should not any longer be supplied with fire-arms, but that they should be deprived of those which already are in their hands. So far they have used them chiefly

in the destruction of the African fauna and only occasionally against the Europeans. Not only for its own protection, but also for the preservation of the wealth of animals, which is still great in East Africa, the German colonial government should disarm the natives completely.

To be sure the fire-arms used by the natives are old-fashioned, discarded muzzle-loaders. I have often been told that this kind of fire-arms is less dangerous in the hands of the native than the poisoned arrow. But even granted that this is the case, it is not wise to allow the natives at the present stage of the colonization of East Africa to become acquainted with the use of any kind of fire-arms. The possession of the muzzle-loader arouses, doubtless, the desire for the more effective breech-loading rifle.

There are at least fifty thousand muzzle-loading fire-arms in the hands of the natives of Wanyamwesi and Unyamwesi, and the government is short-sighted enough to allow this state of affairs, and even sells the powder to the natives—at a large profit. It is short-sighted, no doubt; it may some day prove suicidal.

The Congo Act, 1885, embodies an international agreement not to allow the natives to own or use breech-loading arms. It is time to extend this prohibition to all fire-arms.

The German colonial government has tried to confiscate the arms of the rebellious natives near the Kili-

manjaro, but has been only partially successful. How difficult it is to collect the weapons may be seen from the following instance: A chief had repeatedly been ordered to deliver the fire-arms in the possession of his tribe to the military station. He denied that they had any. When summoned and closely questioned, he admitted there were four, which were surrendered. The officials had reliable information that there were still quite a number of rifles hidden in the chief's district. They kept him a prisoner, and told his people that he would only be released if all arms were given up. Seventy-eight more pieces were brought to the station, and the chief was set free. No doubt only a small fraction of the fire-arms possessed by the tribe had been given up.

The war just now being carried on against the Hereroes in German West Africa should teach the German colonial government a valuable lesson. It is impossible to garrison a wild country like German East Africa, which is twice as large as Germany, much less to wage a successful war if the natives are fairly well armed, as there are over six millions of them against twelve hundred Europeans.

The natives cherish their fire-arms very much indeed, and, from their point of view, cannot be blamed for their unwillingness to give them up. They make hunting very easy, either for a living or in the service of traders in skins and teeth. Besides, they can use them

MASAI AND ELEPHANT SKULL

to settle their grievances against one another and against the colonial government.

The whole public and social organization of the native tribes is to be explained by the fact that they were, from ancient times, in a constant state of war with one another. Now they suddenly are asked by strangers, who have usurped the supreme power, to change the old-established order of things. The chiefs, who had the power of life and death over their tribe, are practically dethroned, and thus the natives are uncontrolled, and will soon be uncontrollable, as the arm of the European administration cannot reach all and every one. It would have been much more simple and much less expensive to strengthen the authority of the chiefs and make them responsible to the government. The complex European method of administration and military government is not only expensive, but will some day prove inefficient and dangerous.

The budget of the colonial government of German East Africa for 1901 shows an expenditure of $2,927,400, including over $1,000,000 for railway construction, and about $550,000 for the colonial army, which numbers 1700 men, of whom 1500 are colored. The revenues for the same year amounted to $700,000, necessitating an imperial subvention of over $2,000,000. It is plain that it is rather expensive to rule such an extended and unfertile territory in European fashion.

Again I repeat, the disarmament of the natives is an

economical and a political necessity. The natives are very secretive and discreet, planning and preparing under the very nose of the Europeans, who are always surprised by the sudden revolts.

When the uprisings near the Kilimanjaro in 1896 and 1899 occurred, neither the government nor the mission stations expected them, and were completely taken by surprise. Fort Moschi was saved by mere chance. The so-called Christians among the blacks were in the secret, and kept it well; in fact, they were to kill the missionaries—as they could easily get near them—after the fall of the fort.

The interests of the white settlers and the natives clash in many ways, and will do so still more as European civilization and ideas and ideals spread. Friction will arise even without governmental misadministration, wilful or unintentional.

The German government in East Africa might, with great profit, follow the example of its English neighbor and even go beyond it.

For years the English government has allowed officials, travellers, and settlers to import for their own use only a limited number of cartridges. If the natives are denied the use of any fire-arms whatsoever, and if the white officials, settlers, and explorers are restricted in the number of cartridges they may use for self-defence and legitimate hunting, then the fauna of Africa will have a chance to hold its own in the struggle for existence.

To what extent fire-arms are handed over to the natives of Africa, in certain districts, may be read in a recently published book by Alfred Kaiser, on Kamerun, according to which, within the past two years, forty thousand muzzle-loading guns were imported and sold to the natives, together with four hundred thousand pounds of gunpowder.

In South Africa the country was despoiled of its animal wealth largely by natives hunting with fire-arms in the service of traders.

May the fauna of German East Africa be spared a similar fate! The way to accomplish this, and also to assure a peaceful development of the colony, may be indicated by three words:

DISARM THE NATIVES

XXXIII

THE MASAI: A WARLIKE PEOPLE OF HERDSMEN

THE Masai who inhabit the high-plateau steppe of British and German East Africa, and who are a warlike people of herdsmen, have until very recently been considered a mixed Ethiopian-Negro people. In 1896 Captain Merker, of the protective troops, and I already had our doubts about this racial designation. We agreed that their features were rather more Semitic than Hamitic.

Captain Merker, who made a special study of this highly interesting subject, has published the result of his investigation in a book on the Masai. He has arrived at the conclusion that, at a time which antedates the oldest Egyptian documents, they emigrated from Arabia by way of Egypt into tropical Africa, and had lived in the high-plateau region for centuries, in the main leading the life of nomadic herdsmen. Merker has also collected material to prove that the Masai, whose religion is monotheistic, are descended from the same Semitic stock of nomads who are also the ancestors of the Hebrew nation of herdsmen. He further is

convinced that the men of the steppe were acquainted with the most ancient biblical myths before these were known in Babylon.

The pure-blooded tribes of the Masai have clear-cut features, well-formed feet and hands, and are of magnificent physique, not one of the warrior class being under six feet in height.

Although Merker's views may not be shared "in toto" by scientists, he deserves high credit for having devoted every leisure hour, while he was stationed in Masailand, to the study of this interesting people, their institutions, customs, and language.

The Masai, since time immemorial, have been the nomads and the rulers of the high steppe of East Africa. Their warriors, "El morane," roamed over the whole country keeping the other tribes in subjection, and enriching their own people's cattle-herds by fair or foul means, for it cannot be denied that the Masai have made of cattle-stealing a fine art. But, just as the advance of civilization was fatal to the North American Indian, so the Masai suffer from coming in contact with the white man and from being subjected to his rule. Their very being, their existence as a people, depends on their manner of living in the wide steppe. If deprived of their unbounded liberty, or checked in it, they will surely disappear as a people. We cannot help sympathizing with them in their plight, as we did with the Indian heroes of Cooper's novels, for we admire

individual bravery and the warlike spirit of nations, wherever it manifests itself, even when it is directed against ourselves.

Here we see a people which ages ago came from its distant home, fought its way through hostile nations, and chose the limitless steppe for its abode; a people which has led for many centuries the freest life imaginable, that of a nomadic warrior nation, ruling the country far and wide. To-day the Masai warrior is still the proudest of men, confiding in his strength, fearing no danger, and looking down on all tribes not so warlike as his own.

The Masai love their country, and know it well. Their senses are almost as keen as those of the animals of the steppe. Once a six-year-old Masai child, straying away from camp, found its way through the pathless "pori," the thorny steppe, to its village, which was two days' distant. The power of this warrior nation was broken by two agencies, the small-caliber, long-range breech-loader of the European invader and the murrain. The Masai, with his primitive spear and shield, was no match for the usurper armed with modern fire-arms. The rinderpest, which about two decades ago ravaged the whole East African steppe, destroyed with one blow the economic basis of the Masai's existence, the cattle-herds. The famine carried off the bulk of the nation, men, women, and children starving to death. Only a few hundred thousand Masai are left.

Some have been forced to become agriculturists; but they cannot change the habits acquired in centuries in a few years. Like the North American Indian, they are doomed to vanish from the face of the globe.

I have lived among the Masai, have had the opportunity of learning to know them and their ways, and I can only think with a deep feeling of sadness of their fate. I can see, in my mind's eye, the stalwart, bronze-colored "El morane" sitting around my camp-fire, spear and shield in arm, humming their ancient war-songs. What could we Europeans have accomplished against them had we fought them with spear and shield? I never felt a grudge against them even when they did attack me, once in a while, at night to steal my cattle. I could not blame them either when they tried to rid themselves of their masters, whom they had not invited to come, and who were depriving them of their ancient prerogatives as the ruling warrior nation. They are still looking forward to the appearance of a great chief, a deliverer, who was predicted by their greatest chief, Mbatyan, a hundred years ago. How the Masai cling to their ingrained customs! And who would blame them?

A Masai boy had been in the service of a German official for many years, had also been repeatedly in Germany, and spoke German so well that he could express himself in Berlinese slang. The "ol aijoni" (boy) had grown into an "ol barnoti" and left his master's

A MASAI DANCE

service. Some years later a European found him in company with other Masai. He had discarded his European clothes and donned an "El morane's" costume. He had chosen to leave civilization behind and live among his people as one of them. He said so in good Berlinese jargon.

I shall never forget the answer which one of my Masai friends gave to one of my carriers who had asked him how he could dare to put his arm into a beehive to secure the honey-comb. "Carrying heavy loads is your business; mine is to rove over the wide steppe. The bees sting you; they love me."

The Masai do not keep slaves; they themselves love liberty too well. Two Masai guides, whom I paid when we reached the coast, used their earnings to free an old Masai woman, a slave in the service of a negro in Pangani. But — other tribes, other views! My old caravan guide, "Maftar," a Suaheli, declined my offer to buy his liberty from his Arabian master; he said he would under no condition cause his master the pain of losing an old servant.

All in all, the Masai, in spite of their faults, are a splendid people, and I can fully appreciate the wish of a friend who knew them well: "If I were not what I am, I should like to be a 'Masai-El Morane' of the good old time."

The successful administration and government of a strange country depend, without doubt, on a thorough

knowledge of the inhabitants, their peculiar nature and institutions. Know in order to govern, and govern wisely.

So alone can unnecessary friction and conflicts be avoided which may lead to bloody and costly wars, costly in treasure and human life. It is a mistake to simply transplant European methods of administration to Africa. One of the most objectionable features is the constant change of officials from station to station. On the contrary, they should stay and familiarize themselves with local conditions, especially the character of the native tribes near the station.

East Africa will hardly ever be developed by immigration from Europe. The country is unhealthy, and will always be so for the men from higher latitudes. It can only be developed by raising the native tribes to a higher level of civilization, as we understand it. But this demands time and patience, close study of all the conditions and of the means to improve them. Force will destroy the natives, and with them the future of the country. We must educate them along the lines of least resistance by trying to cultivate the faculties they possess, in order to achieve our own ends. This is a noble aim. Let us strive for it.

The remotest regions of the earth are opening slowly but surely to the explorer. The advance of progress and civilization is steady and irresistible. Not very long ago the English battered down the wall that had surrounded Tibet and had made it the least known

of Asiatic countries, almost as little known as darkest Africa. Both continents are now giving up their secrets to science. Not long ago the scientific world was surprised by the discovery of two hitherto unknown mammals, one found in Asia, the other in Africa, the *Budorcas taxicolor Hodgs.* and the okapi.

While the age of discovery has wellnigh passed for Africa, many questions regarding its animal life are to be answered.

According to Professor Reichenow there are supposed to be still two hundred different kinds of birds unknown to ornithologists.

Much is also to be done for the preservation of the existing fauna.

No effective remedies have yet been found to fight the periodically recurring murrain, the rinderpest, which does irredeemable damage.

Whenever I travel, in spirit, over those far-away regions, I think of the many friends who have shared my hardships and pleasures, my failures and successes. I think also of my faithful companions, my trusty guides, and patient carriers, particularly those who were with me on all my expeditions. Many gave their lives for me, stricken down by enemies or by the treacherous fever. Their bones may bleach in the tropical sun, but the memory of their devotion will never pale. Like many other travellers in the service of science, I have given the best I had in exploring unknown regions. The Nyika has

sapped some of my vitality, no doubt, and yet I do not regret the hours I spent there. I cherish them, for they were fraught with hours of great joy, a joy which I had earned by the use of all my faculties of body and mind.

I see before me, in my mind's eye, the endless steppe, now flooded with sunshine, now in the magic light of the moon, now lying under a gloomy, cloudy sky, now swept by wind and rain and storm, always grand and beautiful. What would I not often give for just one hour away from civilization in the endless, the beautiful, the grand, the German Masai-Nyika!

THE END

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